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# MEDICINAL & AROMATIC PLANTS ABSTRACTS

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# Medicinal & Aromatic Plants Abstracts

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# Medicinal & Aromatic Plants Abstracts

## Agronomy

**9201-0001** Babakhanyan, M.A.(Institute of Agrochemical Problems and Hydroponics, Armenian Academy of Sciences, Armenian SSR, USSR) **Introduction of Catharanthus roseus G.Don. in open-air hydroponics in the Ararat valley in Armenia.** *Herba Hungarica*, v. 30(1-2): p. 76-81, 1991 (6 ref, Eng, Hun).

The hydroponic way of plant production makes possible to enlarge the cultivation area of this valuable plant. Now it's possible to transfer *C.roseus* from the subtropical zones of Georgia to the continental environment of Armenia. The dry mass yield of the plants grown under hydroponic conditions exceeds the yield obtained in subtropical regions by a factor of three. The amount of indol/indoline alkaloids in 5 gramms per meter square of hydroponic area, which is 7 times than the result obtained in soil. It is advisable to organize a special scientific-industrial organization for pharmaceutical production.

**9201-0002** Czarnecki, M., Zalecki, R.(Instytut Roslin i Przetworow Zielarskich, ul. Libelta 27, 61-707 Poznan, Polska) **Herbicides in cultivation of thyme (Thymus vulgaris L.).** *Herba Polonica*, v. 36(1-2): p. 13-18, 1990 (6 ref, Pol, Eng).

The highest crop of dry mass of *T.vulgaris* was obtained in combinations of Maloran 50 WP applied after sowing, with Fusilade S, Gallant 125 EE or Illoxan 36 EC applied directly to the leaves (11.89, 11.62 and 10.89 q/ha).

**9201-0003** Czarnecki, M., Zalecki, R.(Instytut Roslin i Przetworow Zielarskich, ul Libelta 27, 61-707 Poznan, Polska) **Efficiency of herbicides in cultivation of St. Mary's Blessed (Silybum marianum Gaertn.).** *Herba Polonica*, v. 36(1-2): p. 25-31, 1990 (7 ref, Pol, Eng).

Application of herbicides Gasagard 50 or Tenoran after sowing and Fusilade S, Gallant 125 EE or Kusagard directly to the leaves was found useful in controlling weeds without causing phytotoxicity to the cultivated plant.

**9201-0004** Damle, A.V., Bhat, N.V., Kulkarni, P.R.(Department of Pharmaceutics, The Bombay College of Pharmacy, Bombay, Maharashtra, India) **Decontamination of senna leaflets and their dry extract by gamma radiation.** *Indian Drugs*, v. 28(8): p. 359-361, 1991 (5 ref, Eng).

No significant change in physico-chemical characteristics upon irradiation of *Cassia angustifolia* leaflets was noticed. Senna leaflets with initial bioburden were successfully decontaminated at irradiation dose of 10 KGy.

**9201-0005** Dwivedi, M.P.(Regional Office for Health & Family Welfare, 131/16, Maharana Pratap Nagar, Bhopal, India) **Current status of Lathyrus sativus in India [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 112-113, 1991 ( Eng).

Lathyrisim was a major public health problem in many states of India. There was a reduction in its prevalence from 14/1000 in 1961 to 7/1000 in 1982. There has been a reduction in the cultivation of *L.sativus* from 646800 hect in 1982 to 617600 hect of land in 1985. Greater quantity of the crop is siphoning out for adulteration of Redgram(*Cajanus cajan*)and chickpea(*Cicer arietinum*).There have been attempts to replace *L.sativus* cultivation by safflower and soyabean. The low beta-N-oxalylamino-L-alanine strain of *L.sativus* has been evolved. If this strain is proved stable *L.sativus* will become a boon to combat malnutrition.

**9201-0006** Galambosi, B., Holm, Y. , Szebeni-Galambosi, Zs., Repcak, M. , Cernaj, P.(Agricultural Research Center, South Savo Experimental Station, Krila, 50600 Mikkeli, Finland) **Effect of spring sowing times and spacing on the yield and essential oil of chamomile (Chamomilla recutita L.) cv. "Bona" grown in Finland.** *Herba Hungarica*, v. 30(1-2): p. 47-53, 1991 (4 ref, Eng, Hun).

Chamomile cultivation using spring sowing in Finland is risky due to the dryness of the soil surface during the critical germination phase. The yield remains low if there is not enough precipitation for 7-10 days after the sowing. The risk can be minimized by very early spring sowing or by using artificial irrigation during the critical phase. There were no great differences in the content and the composition of the essential oil of chamomile cv. Bona from the different spring sowing and harvesting dates. The yield of chamomile flowers was higher on plots with diffuse sowing than on plots with sowing into 50 cm apart rows. The diffuse sowing is a more natural way of chamomile propagation than growing in close rows. The herbicide-free production of chamomile needs the row spacing.

**9201-0007** Gopikumar, K., Gawande, S.K., Taide, Y.B.(College of Forestry, Kerala Agricultural University, Vellanikkara, Trichur, Kerala, India) **Effect of plant growth regulators on seed germination in Cassia fistula and Bauhinia purpurea.** *Indian Forester*, v. 117(7): p. 575-576, 1991 (4 ref, Eng).

All concentrations of IAA and IBA significantly promoted germination of both the plant species. NAA was

the least effective. IBA 300 ppm was found to be the most superior for resulting in the highest germination.

**9201-0008** Hegde, D.M.(Indian Institute of Horticultural Research, Bangalore 560 080, Karnataka, India) **Growth and productivity of periwinkle** (*Catharanthus roseus*(L.) G Don) in relation to plant type and method of propagation. *Agricultural Research Journal of Kerala*, v. 26(1): p. 50-58, 1988 (Recd. 1990, 3 ref, Eng).

Relative growth and productivity of pink and white flowered types of periwinkle propagated through seeds and cuttings have been reported. Pink type produced more root, leaf and stem yields than white type. Method of propagation had no significant effect on growth and productivity and plants propagated through seeds and cuttings were equally good. NSL, New Delhi.

**9201-0009** Hojden, B., Lamer-Zarawska, E. , Swiader, K.(Katedra i Zaklad Biologii i Botaniki AM, ul Kochanowskiego 10, 51-601 Wroclaw, Polska) **Studies on usefulness of herbicides in cultivation of Calendula officinalis L.**. *Herba Polonica*, v. 36(1-2): p. 19-24, 1990 (4 ref, Pol, Eng).

Of ten herbicides tried, only four, Dual 720 EC, Ramrod, Teridox 500 EC and Treflan EC 2 proved to be useful in weeding of *C.officinalis*. These herbicides increased 2.95-3.56 q/ha dry inflorescence, while Teridox 500 EC increased the flavonoid content.

**9201-0010** Ibrahim, K.K., Pillai, V.S. , Sasikumaran, S.(Pepper Research Station, Panniyur 670 141, Kerala, India) **Potential of the black pepper cultivar Uthirenkotta in the hybridization programme.** *Agricultural Research Journal of Kerala*, v. 26(1): p. 130-132, 1988 (Recd. 1990, 1 ref, Eng).

The hybrids of *Piper nigrum* produced shorter spikes, but with more number of berries per spike consequently giving more yield than cultivar Uthirenkotta. Uthirenkotta was found to cross well with other cultivars to produce better hybrids. NSL, New Delhi.

**9201-0011** Ipe, C.V.(Kerala Agricultural Research Station, Kerala Agricultural University, Ambalavayal, Wynad, Kerala, India) **Growth and instability in production of spices in Kerala.** *Journal of Plantation Crops*, v. 18(2): p. 96-105 , 1990 (5 ref, Eng).

Growth and instability in production of major spices viz., cardamom, pepper, ginger and turmeric in Kerala from 1960 to 1985 have been reported. Ginger, turmeric and cardamom recorded higher growth rates in the second period, productivity in all the spices recorded higher growth rates in the same period. The higher growth rates in production and productivity were found to be associated with higher instability. NSL, New Delhi.

**9201-0012** Ivany, J.A.(Research Station, Agricultural Canada, Charlottetown, Prince Edward Island, Canada CIA 7M8) **Mentha arvensis control with amino triazole and glyphosate.** *Canadian Journal of Plant Science*, v. 71(2): p. 561-563, 1991 (3 ref, Eng).

Field experiments showed that field mint *M.arvensis* could be controlled by using amino triazole or glyphosate applied where a crop was not present. Both herbicides gave comparable control with application in the six leaf stage but, at the flowering stage glyphosate was more effective than amino triazole, based on visual control rating in the year of application counts of regrowth shoots per square meter the next summer showed both herbicides to be equally effective in controlling field mint. Application at the flowering stage was more effective.

**9201-0013** Jha, K.K., Gupta, C.(State Silviculture Department, Sal Region, Haldwani, UP, India) **Intercropping of medicinal plants with poplar and their phenology.** *Indian Forester*, v. 117(7): p. 535-544, 1991 (7 ref, Eng).

Out of sixty four plant species tried, *Acorus calamus*, *Adhatoda vasica*, *Aloe barbadense*, *Artemisia vulgaris*, *Cannabis sativa*, *Centella asiatica*, *Curcuma amada*, *Curcuma longa*, *Cymbopogon winterianus*, *Piper longum*, *Solanum indicum*, *Vetiveria zizanioides*, *Ammomum subulatum*, *Calotropis gigantia*, *Ocimum sanctum*, *Valeriana wallichii* and *Zingiber officinale* were found most suitable for intercropping with *Populus deltoides*.

**9201-0014** Kuriakose, K.P., Sadhankumar, P.G.(Cardamom Research Station, Pampadumpara 685556, Kerala, India) **PV-1 a high yielding variety of cardamom (Elettaria cardamomum Maton).** *Journal of Plantation Crops*, v. 18(2): p. 122-124 , 1990 (1 ref, Eng).

Of eight varieties of cardamom tested for their performance, variety PV-1 recorded 270.2 gm dry capsules per plant basis. Capsule of variety PV-1, reported as a Malabar type developed by selection from germplasm collection, has been reported as long and angular in shape with light green colour. NSL, New Delhi.

**9201-0015** Kurien, S., Nair, P.C.S.(College of Horticulture, Vellanikkara 680 654, Kerala, India) **Effect of pruning on yield in pepper (Piper nigrum L.).** *Agricultural Research Journal of Kerala*, v. 26(1): p. 137-139, 1988 (Recd. 1990, 7 ref, Eng).

The pruning of unwanted terminal growth encouraged development of lateral shoots and higher production of spikes. More severe prunning resulted in low spike produc-

tion as the number of aborted spikes was more. NSL, New Delhi.

**9201-0016** Nagy, F., Foldesi, D., Banyai, L. , Deak, I., Demcsak, J.(Research Institute for Medicinal Plants, H-2011 Budakalasz, PB 11, Hungary) **New chemical weed control of Roman camomile stands.** *Herba Hungarica*, v. 30(1-2):p. 54-59, 1991 (3 ref, Eng, Hun).

Three-year systematic small-plot and large-scale experiments have revealed that an effective weed control of the Roman camomile stand can be achieved by 5-6 1/ha Stomp or 3.5-4 kg/ha Maloran or their combination (3-3.5 kg/ha, Maloran+3-3.5 kg/ha Racer) if the herbicides are sprayed in early spring, before the vegetation starts. The Roman camomile stand can be treated with 2-3 1/ha Pardner before budding, when the weeds have 2 to 4 leaves. Resistant weeds can be treated with the tank mixture of 2-2.5 1/ha Pardner and 1.2-1.5 1/ha Starane. The rotation of the listed herbicides and herbicide combinations is recommended. Their selection is determined by the local weed composition.

**9201-0017** Nair, A.K., Subrahmanyam, K., Verma, B.S., Singh, D.V. (Central Institute of Medicinal & Aromatic Plants, Lucknow 226016,UP, India) **Effect of level of fertility, iron and zinc on herbage yield and menthol content of Japanese mint (Mentha arvensis subsp. haplocalyx var. piperascens).** *Indian Journal of Agricultural Sciences*, v. 61(8): p. 599-600, 1991 (4 ref, Eng).

High level of NPK fertilizers gave significantly more herbage yield. Menthol content of the essential oil was not influenced by NPK fertilizers. Fe @ 5 ppm and Zn @ 10 ppm significantly increased the herbage yield of Japanese mint.

**9201-0018** Nigam, K.B., Patidar, H., Kandalkar, V.S., Pathan, M.A. (KN Katju College of Agriculture, JN Krishi Vishwa Vidyalaya,Campus Mandsaur, 458001, MP, India) **A new, promising, pre-release variety, 'WS 20', of ashvagandha (Withania somnifera).** *Indian Journal of Agricultural Sciences*, v. 61(8): p. 581-582, 1991 (2 ref, Eng).

A new variety of *W.somnifera* recorded significant increase of 29.9 and 28.3 percent in dry-root yield over local varieties. The plant showed 4.2 branches/plant, non-hairy errect stem, dense dark green leaves, small sized light green flowers, dark green unripe berries, which change to pale yellow when ripe. The roots were found to contain 0.27 percent total alkaloids.

**9201-0019** Selot, A., Bera, M.S., Mukherjee, S., Kesherwani, G.P., Sharma, Y.K.(Department of Food Science and Technology, JN Agricultural University, Jabalpur, 482004, MP, India) **Moisture adsorption, fractionation of bound water and storage stability of coriander seed powder.** *Journal of Food Science and Technology*, v. 28(4): p. 216-221, 1991 (21 ref, Eng).

Water activity and equilibrium moisture content data of coriander (*Coriandrum sativum*) seed powder were obtained at three temperatures (10,25 and 50 +-1 degree C). Coriander seed powder was found to be stable for storage in water activity range of 0.2 to 0.88 which corresponds to equilibrium moisture content 0.0053 to 0.12 kg water/kg dry solid depending on temperature range. NSL, New Delhi.

**9201-0020** Singh, N., Swami, A., Gupta, B.K. , Grover, S.P. (Department of Botany, DAV (PG) College, Dehra Dun, UP, India) **Some noteworthy medicinal plants of commercial potentiality of Doon Valley.** *Indian Journal of Physical and Natural Sciences*, v. 9(Sec.A) April: p. 24-33, 1989 (Recd. 1991, 9 ref, Eng).

Thirty medicinal plants of commercial importance are listed alongwith their habit, habitat, part of the plant used, time of the collection, approximate quantity available annually and vernacular names of the plants. NSL, New Delhi.

**9201-0021** Topalov, V., Zheljazkov, V.(Higher Institute of Agriculture, Department of Plant Growing, 4000 Plovdiv, Mendelev Str. 12, Bulgaria) **Effect of harvesting stages on the yield of fresh material, essential oil, and planting material from Mentha piperita Huds. and Mentha arvensis L.**. *Herba Hungarica*, v. 30(1-2): p. 60-67, 1991 (11 ref, Eng, Hun).

The Japanese mint (*M.arvensis*) plants when left unharvested, from generative organs by the time of weather cooling in autumn, while the peppermint (*M.piperita*) stops its development with the passing of the 100 percent flower stage. The yields of fresh material and essential oil from both investigated species decrease as a result of defoliation after the 50 percent flower stage. The peppermint, a long day plant, forms its main rhizome mass in late autumn and the Japanese mint, a short day plant, forms its main rhizome mass earlier, at the 50 percent to 100 percent flower stages. The yield and quality of rhizomes as a planting material, increase when the peppermint plantings are harvested after the 100 percent flower stage (in mid October), and those from the Japanese mint at the 100 percent flower stage (in mid August). Earlier harvesting of these mint species leads to the increase of the essential oil yields, but it decreases the yield and quality of the rhizomes.

**9201-0022** Vitkare, D.G., Phasate, S.N., Zade, K.B., Paulkar, K.S. (Punjabrao Krishi Vidyapeeth, Akola, Maharashtra, India) **Effect of nitrogen and phosphorus**

**fertilization on the oil content and oil quality of lemongrass (Cymbopogon flexuosus).** *PKV Research Journal*, v. 14(1): p. 64-66, 1990 (4 ref, Eng).

Average oil content in foliage from total four cuttings and alde- hyde content in lemongrass oil were significantly affected by nitrogen fertilization while phosphorus did not show any significant effect. Absence of nitrogen and phosphorus fertilization yielded the oil which was low in total aldehyde and citral contents. However, geraniol content of the oil was found to be very high.

**9201-0023** Yamgar, V.T., Pawar, H.K.(Turmeric Research Station, Digraj 416 203, Maharashtra, India) **Studies on the fertilizer sources on yield of turmeric.** *Journal of Plantation Crops*, v. 19(1): p. 61-62, 1991 (6 ref, Eng).

Application of fertilizer dose 120 kg N + 60 kg P2O5 and 60 kg K/ha through straight fertilizers recorded significantly maximum yield. Lower dose of 45: 30: 30 kg NPK/ha through straight fertilizers was found to be significantly superior to the higher dose of 60: 40: 40: kg NPK/ha through complex fertilizers. NSL, New Delhi.

## Botany (General & Systematic)

**9201-0024** Badhe, P.D., Pandey, V.K.(SMPU, Regional Research Centre, 1093, Gorepeth, Nagpur 10, Maharashtra, India) **A study of medicinal and economic plants of Amravati division, Amravati circle, Maharashtra.** *Bulletin of Medico-Ethnobotanical Research*, v. 11(1-4): p. 1-39, 1990 (17 ref, Eng).

The article enumerates the medicinal and economic values of 123 species from Amravati division, Amravati circle in Vidarbha forest of Maharashtra State. The botanical, Sanskrit, local and family names, flowering and fruiting time along with their distribution and availability are given.

**9201-0025** Baytop, A.(Eczacilik Fakultesi, Farmasotik Botanik Bilim Dalt, Istanbul, Turkey) **Wild and cultivated aromatic plants used in Turkey.** *Turkish Journal of Pharmacy*, v. 1(2): p. 76-88, 1991 (3 ref, Tur, Eng).

Names, distribution and uses of 98 aromatic plants, wild or grown, used in Turkey have been reported.

**9201-0026** Cocucci, A.A.(Instituto Muetidisciplinario de Biologia Vegetal, Casilla de Correo 495, 5000 Cardoba, Argentina) **Pollination biology of Nierembergia (Solanaceae).** *Plant Systematics and Evolution*, v. 174(1-2): p. 17-35 , 1991 (22 ref, Eng).

Species of *Nierembergia* are highly toxic and cause poisoning of animals. Morphological and anatomical description of the floral syndrome, including a survey of the presence of elaiophores, chromatography of the floral oils and observations on the pollinator behaviour are presented. IARI, New Delhi.

**9201-0027** Ezer, N.(Hacettepe Universitesi, Eczacilik Faleultsi, Farmakognozi anabilim Dalt, Ankara, Turkey) **Morphological and anatomical investigations on Sideritis libanotica Labill., subsp. Linearis (Bentham) Bornm. used as folk medicine and herbal tea.** *Turkish Journal of Pharmacy*, v.1(1): p. 1-9, 1991 (5 ref, Tur, Eng).

Distribution, morphological and anatomical characters of the plant used as folk medicine and herbal tea in infusion forms in the vicinity of antalya-Elmalt and Mersin are described.

**9201-0028** Joshi, G.C., Pandey, N.K., Tiwari, K.C., Tiwari, R.N. (Amalgamated Unit, CCRAS, Tarikhet (Ranikhet) 263663, UP, India) **A preliminary synecological approach for the study of herbal wealth of high altitude Himalaya and their conservation strategy.** *Bulletin of Medico-Ethnobotanical Research*, v. 11(1-4): p. 96-102, 1990 (5 ref, Eng, Hin).

The present study deals with a synecological approach for the study of timber line vegetation with special reference to the medicinal wealth of high altitude Himalaya ranging from 3500-4500 masl. The frequency, density and abundance of 31 plant species occurred in 10 quadrats under study area of Kushkalyan "Bugyal" in Utterkashi district of Garhwal Himalaya were calculated. It was observed that the frequency, density and abundance of medicinal herbs were found lowest among all species occurred in that area. It is due to over exploitation in trade. Thus there is a need to evolve and standerdize the plant culture practices particularly in the adverse environmental zone for saving them from their fast depletion.

**9201-0029** Koyuncu,M., Koroglu, A.(Ankara Universitesi, Eczacilik Facultesi, 06100 Tandogan, Ankara, Turkey) **Anatomical study on the leaves and fruits of Rhus coriaria L..** *Turkish Journal of Pharmacy*, v. 1(2): p. 89-96, 1991 (12 ref, Tur, Eng).

Anatomical characteristics of leaves and fruits of *R.coriaria*, the only species native to Turkey and used as folk medicine and culinary spice have been described.

**9201-0030** Maiti, S., Biswas, S.R.(All India Co-ordinated Research Project on Betelvine, Indian Institute of Horticultural Research, Bangalore 560089, Karnataka, India) **Sexual dimorphism in betelvine (Piper betle).** *Indian Journal of Agricultural Sciences*, v. 61(9): p. 656-658, 1991 (4 ref, Eng).

*P.betle* showed sexual dimorphism in leaf shape. Leaves of the male plants were narrowly ovate with 1.84+-0.21 length:breadth value and leaves of female plants were cordate, ovate to round with 1.26+-0.13 length:breadth value.

**9201-0031** Mathai, C.K., Nair, B.P.(Tree Physiology Laboratory, Indian Institute of Horticultural Research, Hessaraghatta, Lake Post, Bangalore 560 089, Karnataka, India) **Biomass production levels in relation to economic yield in black pepper varieties.** *Journal of Plantation Crops*, v. 18(2): p. 125-128 , 1990 (7 ref, Eng).

Black pepper varieties showed variability in their productivity levels. Varieties with large structural growth were found to be low yielders and variety Karimund having a smaller vegetative structure was found to be highly productive. Efficient dry matter partitioning capacity of high yielding varieties was found to be strongly influenced by its total biomass production. NSL, New Delhi.

**9201-0032** Salgare, S.A., Iyer, M.P.(Department of Botany, Institute of Science, Bombay 400 032, Maharashtra, India) **Effect of auto-exhaust pollution on the stem anatomy of some weeds.** *Journal of Ecotoxicology of Environmental Monitoring*, v. 1(1): p. 45-48, 1991 (8 ref, Eng).

The plants studied were *Amaranthus viridis*, *Boerhavia diffusa*, *Cassia tora*, *Euphorbia hirta*, *Malachra capitata*, *Portulaca grandiflora*, *Ricinus communis* and *Tridexprocumbens*. The parameters examined were number of trichomes per unit area, length and breadth of trichomes, number of paraenchyma cells/unit area, in pith and cortex from TS and LS of 4th internode and thickness of stele and cortex from TS of 4th internode. The investigation proved that the auto-exhaust pollution inhibited all the parameters except the number of trichomes per unit area. NSL, New Delhi.

**9201-0033** Shah, M.Y.(Department of Pharmaceutical Sciences, University of Kashmir, Srinagar 190 006, JK, India) **Distribution of trichomes on Pedicularis pyramidata Royle and Pedicularis elephantoides Benth Rhinantheae, Scrophulariacea.** *Journal of Plant Anatomy and Morphology*, v. 5(1): p. 9-13, 1988 (Recd. 1991, 13 ref, Eng).

Two well defined trichome types have been found in *P.pyramidata* and *P.elephantoides*. These include universiate multicellular hairs and uniseriate multicellular glandular trichomes with capitate heads. Their distribution on various organs in these two un-investigated plant species is described. NSL, New Delhi.

**9201-0034** Singh, B.P., Singh, H.(Department of Botany, SGN Khalsa College, Sriganganagar, Rajasthan, India) **The effect of canal irrigation on the natural flora of North-West Rajasthan.** *Journal of Phytological Research*, v. 3(1&2): p. 51-58 , 1990 (7 ref, Eng).

The North-West Rajasthan is being irrigated by the Ganga canal, Bhakra canal and Indira Gandhi canal which has greatly affected the natural flora of the area during the last 60 years or so. The irrigation waters, which owe their source to the Punjab rivers, have been bringing seeds and other propagules of a number of extralimital species year after year and many of these have become successfully established in the area as crop weeds or along the banks of canals. In the irrigated regions, there are 87 species which do not occur in the unirrigated regions of the entire Thar desert. Some of the most conspicous of these are temperate elements like *Marchantia polymorpha*, *Cotula anthemoides*, *Astragalus subumbellatus*, *Ammi majus*, *Verbascum thapsus*, *Plantago amplexicaule* and *Pouzolzia pentandra*.

**9201-0035** Singh, R.D.(Horticultural Experiments & Training Centre, Saharanpur, UP, India) **Studies on bael (Aegle marmelos Correa)-2. Morphology of flower anthesis, dehiscence and receptivity of stigma.** *Progressive Horticulture*, v. 21(1-2): p. 62-68, 1989 (Recd. 1991, 8 ref, Eng).

Treatment with 2,4-D, MH, ethrel and cycocel was found to decrease vine length and leaf area of bael *A.marmelos*. The flowering started from 20th May and continued upto 22nd July for a period of about two months. The flowering was axillary or lateral. The chronology of bud development took 26.78 to 29.07 days for complete development. The flowers were hermaphrodite and both tetra and pentagamous. Anthesis started early in the morning and maximum flowers opened between 4-5 am. Under normal condition dehiscence of anthers started after anthesis and the peak was noted in between 7-8 am. Receptivity of stigma started a day before anthesis and it was maximum on the day of anthesis It vanished 3 days after anthesis. NSL, New Delhi.

## Breeding & Genetics

**9201-0036** Grzybowska, T., Krajewska, A. , Drankiewicz, B., Segiet-Kujawa, E.(Instytut Roslin i Przetworow Zielarskichi, ul. Libelta 27, 61-207 Poznan, Polska) **Conservation breeding of ergotamine and ergotoxine strain of Claviceps purpurea Tul..** *Herba Polonica*, v. 36(1-2): p. 9-12, 1990 (12 ref, Pol, Eng).

Main chemical parameters of three ergotamine and one ergotoxine strains of ergot cultivated in the Institute of Medicinal Plants in Poland are presented.

**9201-0037** Khanna, K.R., Shukla, S.(National Botanical Research Institute, Lucknow, UP, India) **Studies on inheritance of papaverine in Papaver somniferum L. and morphological marker for plants with high papaverine content.** *Herba Hungarica*, v. 30(1-2): p. 7-10, 1991 (5 ref, Eng, Hun).

*P.somniferum* usually has a low papaverine content i.e., below 0.5 percent in dry opium. Some plants with high papaverine content (upto 6.0 percent) were isolated and their inheritance in the subsequent generations has been followed. It is proposed that high papaverine content is produced as a result of certain epistatic combinations. The results are in accordance with similar studies conducted on interspecific cross of opium poppy or on other alkaloid bearing plants. In a wide variety of material, it is observed that high papaverine plants exude white fresh latex on lancing. The use of white latex as a morphological marker for locating high papaverine plants is recommended.

**9201-0038** Nagaraja, J.V., Gowda, P.H.R. , Leela, N.K.(Division of Horticulture, GKVK, Bangalore 560065, Karnataka, India) **Evaluation of interspecific hybrid derivatives of Solanum melongena L. x Solanum incanum L. for yield and solasodine.** *Indian Drugs*, v. 28(11): p. 508-510, 1991 (13 ref, Eng).

Maximum number of berry bearing nodes per plant was observed in the white fruited F5 line of *S.melongena* x *S.incanum*. Higher number of berries per node, number of berries per plant and maximum solasodine in the berries were observed in the variety of *S.incanum* (Annamalai). White fruited F5 line contained higher solasodine in the berries compared to other F5 lines.

**9201-0039** Saeed, V.A., Husain, S.A., Husain, S.S.(PCSIR Laboratories Complex, Karachi 75280, Pakistan) **Cytological investigations in three species of Convolvulus Linn. from Pakistan.** *Pakistan Journal of Scientific and Industrial Research* , v. 33(12): p. 538-541, 1990 (22 ref, Eng).

*C.arvensis*, *C.prostratus* and *C.glomeratus* were cytologically investigated (n=25 for *C.arvensis*, n=14 for *C.glomeratus* with normal meiotic behaviour). Two chromosomal forms with n=18 and 20 were recorded for *C.prostratus*. Anomalous behaviour during microsporogenesis was observed with univalents, trivalents and quadrivalents in 53 percent of pollen mother cells (PMCs.) Complete bivalent formation was recorded in 47 percent of PMCs scored.

**9201-0040** Swamy, B., Ramanuja Swamy, J. , Mallaiah, B.(Department of Chemistry, Kakatiya University, Warangal 506009, AP, India) **Effect of hydrazones on mitosis in root tips of Trigonella foenum-graecum L..** *Journal of Phytological Research*, v. 3(1&2): p. 115-118 , 1990 (9 ref, Eng).

The effect of two hydrazones namely Bahana and Scana was studied on mitosis in root tips of *T.foenum-graecum*. The mitotic index fell down with the gradually increasing concentrations of the hydrazones. Bahana was found to be more potent chemical in inducing chromosomal aberrations than Scana.

**9201-0041** Tucker, A.O., Hendriks, H., Bos, R. , Fairbrothers, D.E. (Department of Agriculture and Natural Resources, Delaware State College, Dover, DE 19901-2275, USA) **The origin of Mentha x gracilis (Lamiaceae). II. Essential oils.** *Economic Botany*, v. 45(2): p. 200-215, 1991 (67 ref, Eng).

Essential oils were examined in nine clones of *Mentha arvensis*, four clones of *M.spicata* and 20 clones of *Mentha* x *gracilis*. An F1 hybrid of *M.arvensis* x *M.spicata*, selected on the basis of morphology and chromosome number, was matched with one clone of *Mentha* x *gracilis* for the inheritance of limonene, 1,8-cineole, linalool, isomenthone, carvone, and piperitenone oxide were identified in one clone of *M.arvensis* and two clones of *M.spicata*. The range of essential oil compounds detected indicates that no one character can be used to identify *Mentha* x *gracilis*, but the critical compounds of the oil of *Mentha* x *gracilis* can be derived from crosses of *Mentha arvensis* x *Mentha spicata*.

## Diseases & Pests

**9201-0042** David, P.M.M., Hanifa, M. , Natarajan, S.(Agricultural Research Station, T N Agricultural University, Paramakudi 623 707, TN, India) **Biology and control of blossom midge Contarinia sp. (Diptera: Cecidomyiidae) on Jasminum sambac in Tamil Nadu.** *Entomon*, v. 15(3): p. 193-196, 1990 (7 ref, Eng).

The blossom midge has been identified as the causal organism of purple discolouration and premature drying of flower buds in *J.sambac*. Monocrotophos 0.1 percent spray was found significantly effective in reducing the discolouration. NSL, New Delhi.

**9201-0043** Gokte, N., Mathur, V.K.(Plant Quarantine Division, National Bureau of Plant Genetic Resources, New Delhi 110012, India) **Thermal therapy for the eradication of Mentha spicata roots infected with Meloidogyne incognita.** *FAO Plant Protection Bulletin*, v. 38(4): p. 213-215 , 1990 (5 ref, Eng).

Complete eradication of nematodes from *M.spicata* roots can be achieved by giving hot water treatments at 48

degrees C for 30 minutes or at 50 degrees C for ten minutes without injuring the plants.

**9201-0044** Gour, T.B., Singh, T.V.K., Sathe, A., Pasha, S.N.(Andhra Pradesh Agricultural University, Rajendranagar, Hyderabad 500 030, AP, India) **Stemmatophora fuscibasalis Snellen a new record as a pest of citronella.** *Indian Journal of Plant Protection*, v. 19(2): p. 220 , 1991 (Eng).

Occurrence of the pest on *Cymbopogon winterianus* in India is reported for the first time. NSL, New Delhi.

**9201-0045** Kedzia, B.(Instytut Roslin i Przetworow Zielarskich, ul. Libelta 27, 61-707 Poznan, Polska) **Phytopathogenic microorganisms in herbal raw materials. II. Moulds.** *Herba Polonica*, v. 36(1-2):p. 55-58, 1990 (22 ref, Pol, Eng).

Moulds belonging to various orders and genus, present in herbal raw materials have been described. Since all genera of moulds were found to show good growth on artificial media, their effect in microbiological estimation of herbal raw material has been reported.

**9201-0046** Koya, K.M.A., Devasahayam, S., Prem Kumar, T.(National Research Centre for Spices, Marikunnu, Kozhikoda 673 012, Kerala, India) **Insect pests of ginger (Zingiber officinale Rosc.) and turmeric (Curcuma longa Linn.) in India.** *Journal of Plantation Crops*, v. 19(1): p. 1-13, 1991 (63 ref, Eng).

Information available on various insect pests infesting *Z.officinale* and *C.longa* in India has been reviewed. Forty six species of insects have been reported to infest these crops in the field and in storage. Details of nature of damage, life history, natural enemies, alternate hosts, varietal reaction and control of shoot borer, leaf roller and rhizome scale have been included. NSL, New Delhi.

**9201-0047** Mani, A., Srihari, D.(Citrus Improvement Project, A P Agricultural University, Tirupati 517 502, AP, India) **Phytonematodes associated with turmeric in Andhra Pradesh and reaction of certain turmeric lines to Meloidogyne incognita.** *Indian Journal of Nematology*, v. 19(2): p. 272, 1989 (Recd. 1991, 3 ref, Eng).

Soil and root samples of *Curcuma longa* showed dominance of *Rotylenchulus renifermis* and *Meloidogyne incognita* along with other nematodes. Variety Cli-32/4 was found to be moderately resistant to root-knot nematodes, while all other varieties/lines were susceptible to varying degrees.

**9201-0048** Midha, R.L., Trivedi, P.C.(Department of Botany, University of Rajasthan, Jaipur 302004, Rajasthan, India) **Evaluation of cumin varieties against root-knot nematode, Meloidogyne incognita.** *Indian Journal of Nematology*, v. 19(2): p. 264, 1989 (Recd. 1991; 1 ref, Eng).

Of thirty one *Cuminum cyminum* varieties screened, CVT-R-S-1, CVT.JC-1, CVT JC-2, CVT 2C-3, CVT VC-43 and CVT UC-199 were found resistant to root-knot nematodes. All other varieties were found to be susceptible.

**9201-0049** Mohandas, C., Ramana, K.V.(National Research Centre for Spices, Kozhikode 673 012, Kerala, India) **Pathogenicity of Meloidogyne incognita and Radopholus similis on black pepper (Piper nigrum L.).** *Journal of Plantation Crops*, v. 19(1): p. 41-53, 1991 (26 ref, Eng).

Root-knot nematode and the burrowing nematode affected the growth and vigour of the vines resulting in significant reduction in yield. The damage caused by *R.similis* was more severe. Foliar yellowing and defoliation were low during July and high during April/May. NSL, New Delhi.

**9201-0050** Mohapatra, S.N., Padhi, N.N., Swain, P.K.(Department of Nematology, Orissa University of Agriculture and Technology, Bhubaneswar 751 003, Orissa, India) **Reaction of some varieties of citronella grass against plant parasitic nematodes.** *Indian Journal of Nematology*, v. 19(2): p. 273, 1989 (Recd. 1991, Eng).

Association of three plant parasitic nematode species, *Hoplolaimus indicus*, *Ttrichodorus* spp and *Hemicriconemoides mangiferae* was noticed in six varieties of *Cymbopogon* spp. The cultivars exhibited stunting and stubby root symptoms, browning and withering of leaves and also stunted growth.

**9201-0051** Raj Kumar, Pandey, J.C.(Horticultural Experiments & Training Centre, Chaubatia, Ranikhet, Almora, UP, India) **Chemical control of rhizome rot of ginger by seed and soil treatments.** *Progressive Horticulture*, v. 21(1-2): p. 130-133 , 1989 (Recd. 1991, 5 ref, Eng).

Soil treatment with 4 percent formalin and seed treatment with Tapsin 0.1 percent were found the best for the control of rhizome rot of ginger (*Zingiber officinale*) giving maximum yield. Seed treatment with Bavistin (0.1 percent) or Dithane M-45 (0.3 percent) along with soil treatment with formalin (4 percent) also controlled the disease satisfactorily, but yield was less compared to above mentioned combinations. NSL, New Delhi.

**9201-0052** Ramana, K.V., Mohandas, C.(National Research Centre for Spices, Calicut 673012, Kerala, India) **Techniques for screening black pepper germplasm to Radopholus similis and Meloidogyne incognita.** *Indian*

*Journal of Nematology*, v. 19(2): p. 144-149 , 1989 (Recd. 1991, 9 ref, Eng).

Standardization of techniques of screening of *Piper nigrum* germplasm to burrowing and root-knot nematodes has been discussed. An inoculum of 150-250 nematodes and recording of root lesion index 5-6 months after inoculation in burrowing nematodes and an inoculum of 1000 second stage juveniles and recording after four months in root-knot nematodes were found optimum for screening black pepper germplasm for their reaction to these nematodes.

## Physiology & Biochemistry

**9201-0053** Aerts, R.J., Snoeijer, W., van der Meijden, E., Verpoorte, R.(Department of Pharmacognosy, Center for Bio-Pharmaceutical Sciences, University of Leiden, PO Box 9502, 2300 RA Leiden, The Netherlands) **Allelopathic inhibition of seed germination by Cinchona alkaloids.** *Phytochemistry*, v. 30(9): p. 2947-2951, 1991 (30 ref, Eng).

The germination of *Ocimum* (a tropical herb), of Spermacoce and *Catharanthus* (two tropical, alkaloid-producing plants), and of *Cinchona* itself was strongly inhibited by the alkaloids when applied at concentrations higher than about 0.3 mM. To test for the possible allelopathic significance of this finding, the soil in which two-year-old *Cinchona* plants were grown was examined for its quinoline alkaloid content. Although the roots of the plants contain high concentrations of these alkaloids (ca 10 mM), in the soil only very low concentrations were found (ca 0.02 mM). Upon germination of seeds sown close by the plants, no toxic effects were observed. Although several studies have reported inhibition of seed germination by *Cinchona* alkaloids under laboratory conditions, the results indicate that this property does not play a role under natural circumstances at realistic concentrations.

**9201-0054** Chen, P.K., Polatnick, M.(Department of Biology, Georgetown University, Washington DC 20057, USA) **Comparative study on artemisinin 2,4-D- and glyphosate.** *Journal of Agricultural and Food Chemistry*, v. 39(5): p. 991-994, 1991 (21 ref, Eng).

Artemisinin is an antimalarial agent isolated from *Artemisia annua*. Recently,it has been demonstrated that this allelochemical is a selective phytotoxin. A comparative study was made between artemisinin and two commonly used herbicides, 2,4, -D and glyphosate. At 5 microM all these compounds inhibited root induction in mung bean *Phaseolusaureus* seedling cuttings. Artemisinin exerted the same level of inhibition in growth as glyphosate. At the enzymatic level, artemisinin inhibited peroxidase synthesis and showed no effect on tyrosinase activity.

**9201-0055** Daniel, E.M., Ratnayake, S. , Kinstle, T., Stoner, G.D. (Department of Pathology, Medical College of Ohio, PO Box 10008, Health Education Building, Room 202, Toledo, Ohio 43699, USA) **Effects of pH and rat intestinal contents on the liberation of ellagic acid from purified and crude ellagitannins.** *Journal of Natural Products*, v. 54(4): p. 946-952 , 1991 (26 ref, Eng).

This study was undertaken to measure the liberation in vitro of ellagic acid, a naturally occurring inhibitor of carcinogenesis, from precursor ellagitannins under conditions found in the gut tract. The hydrolysis of the ellagitannins was not catalyzed by any of the purified enzymes tested, and components of *Rubus ideaus* extract were found to inhibit the purified esterases noncompetitively. Casuarictin was hydrolyzed to yield high quantities of ellagic acid when placed in buffer at pH 7 and 8, or when incubated with cecal contents for two hours. The release of ellagic acid from the raspberry extract was optimal at pH8, and maximal release in cecal contents occurred with 1 h. Small intestinal contents had no significant effect on ellagic acid liberation from either casuarictin or raspberry extract.

**9201-0056** Das, M., Patel, K.N., Shah, B.K. , Chauhan, M.G., Bhavsar, G.C.(L M College of Pharmacy, Ahmedabad 9, Gujarat, India) **Antihepatotoxic principles in tissue culture of E.alba Linn..** *Indian Drugs*, v. 28(8): p. 356-358, 1991 (12 ref, Eng).

Production of two potent antihepatotoxic principles, wedelolactone and demethylwedelolactone and cell differentiation in the tissue culture of *Eclipta alba* stems have been reported.

**9201-0057** Dasgupta, M., Datta, S:K.(Tissue Culture and Pharmacognosy Lab., Department of Botany, Visva-Bharati University, Santiniketan 731 235, WB, India) **Correlation of peroxidase activity with xylogenesis in callus tissues of Thevetia peruviana (Pers.) Schum.** *Journal of Plant Anatomy and Morphology*, v. 5(1): p. 15-19, 1988 (Recd. 1991, 7 ref, Eng).

Xylogenesis in young and older calli derived from cotyledonary explants of *T.peruviana* has shown that the peroxidase activity is almost directly proportional to the xylary cell formation; perhaps it is the prerequisite for transformation of parenchyama cell towards lignified xylary cell formation. NSL, New Delhi.

**9201-0058** Edgington, S.M.(Library of New York Botanical Garden, Bronx NY, USA) **Taxol: Out of the woods.** *Biotechnology*, v. 9(10): p. 933-938, 1991 (4 ref, Eng).

Ethanol extract of dried bark of Pacific Yew (*Taxus baccata*) shows antineoplastic activity.The active constituent is found to be the diterpene, taxol. The isolation,

structure, tissue culture techniques, working, other routes etc. for taxol have been briefly discussed. Renewable needles of *T.baccata* have been found to contain high concentrations of a taxol precursor viz., 10-deacetylbaccatin III.

**9201-0059** Fong, C.H., Hasegawa, S., Herman, Z., Ou, P.(Fruit and Vegetable Chemistry Laboratory, ARS, US Department of Agriculture, 263 South Chester Avenue, Pasadena, CA 91106, USA) **Biosynthesis of limonoid glucosides in lemon (Citrus limon).** *Journal of the Science of Food and Agriculture*, v. 54(3): p. 393-398, 1991 (10 ref, Eng).

TLC analyses of lemon *C.limon* fruit at various stages of maturity showed that limonoid glucosides were synthesised during the late stages of fruit growth. No limonoid glucosides were found in the stem and leaf. Use of radioactive tracers showed that 14C-nomilin was converted to 14C-nomilin 17-beta-D-glucopyranoside in fruit tissues and seeds. Glucosides are indeed the major end products of limonoid metabolism.

**9201-0060** Fulzele, D.P., Sipahimalani, A.T. , Heble, M.R.*(Plant Biotechnology Section and Bio-organic Division, Bhabha Atomic Research Centre, Trombay, Bombay 400 085, Maharashtra, India) **Tissue cultures of Artemisia annua: Organogenesis and artemisinin production.** *Phytotherapy Research*, v. 5(4): p. 149-153, 1991 (15 ref, Eng).

Seeds of *A.annua* obtained from different locations, Europe, Michigan USA, Washington USA, Hoechst India and Lucknow were germinated and grown in an experimental field station. The plants were harvested during the early flowering stage and analysed for artemisinin and arteannuin-B. Plants from Europe produced the highest levels of artemisinin (6.50 mg % fresh weight (F.-W) and those from Lucknow produced the highest level of arteannuin-B (21.42mg%F.W.). Callus initiation and growth was achieved on Murashige and Skoog's medium supplemented with BA (1 ppm) +NAA (1 ppm) fromthe five plant types. The European variety gave multipleshoots in BA (0.01 ppm)+IAA (1 ppm) medium and root formation in NAA (1 ppm)+Kn (0.1 ppm) medium. Artemisinin and arteannuin-B were detected in cultures of the European variety with complete differentiation (0.95 mg% F.W. and 6.57 mg%F.W. respectively).

**9201-0061** Ganapathi, B., Kargi, F.(Biotechnology Engineering Laboratory, Department of Chemical Engineering, Washington University, St. Louis, MO 63130, USA) **Recent advances in indole alkaloid production by Catharanthus roseus (periwinkle).** *Journal of Experimental Botany*, v. 41(224): p. 259-267 , 1990 (79 ref, Eng).

Considerable progress accomplished in cell culture techniques for production of indole alkaloids from Catharanthus roseus has been reviewed. Key effects of nutrients, environmental effects, stress-inducing compounds and strain selection techniques on the production of alkaloids are summarized. Cultivation methods such as suspension cultures, immobilization, and a novel biofilm configuration are compared. IARI, New Delhi.

**9201-0062** Grewal, S., Ahuja, A., Reinhard, E.(Regional Research Laboratory, Jammu-Tawi, JK, India) **Production of hyoscyamine by root cultures of Hyoscyamus muticus L.**. *Herba Hungarica*, v. 30(1-2): p. 109-116, 1991 (11 ref, Eng, Hun).

Axenic root culture derived from sterile leaf segments of *H.muticus* were established on Gamborg's - B5 medium with IBA, 5x106M. Hyoscyamine was the major alkaloid component in root cultures. The synthesis of hyoscyamine was concomitant with root culture growth. Hyoscyamine production from root culture was optimised with respect to medium constituents, aeration, agitation inoculum density, culture vessel size, light and/dark incubation in shake flasks. Further, adaptability of rapidly growing root cultures was studied in air-lift and air-stirred bioreactors.

**9201-0063** Hansen, G.E., Stoessel, P.*, Rossi, P.(Nestle Research Centre, Nestec Ltd, Vers-chez-les-Blanc, PO Box 44, CH-1000 Lausanne 26, Switzerland) **Distribution of gamma-linolenic acid in the comfrey (Symphytum officinale) plant.** *Journal of the Science of Food and Agriculture*, v. 54(2): p. 211-219, 1991 (10 ref, Eng).

The distribution of gamma-linolenic acid (GLA) was studied in various parts of the comfrey *S.officinale* plant and at different stages of maturation of the comfrey seeds. Leaves contained only 1-2 percent, whereas stem and roots contained 12-16 percent GLA of total fatty acids. In seeds, the 18:3 fatty acids were predominantly of the n-3 type, alpha-linolenic acid (ALA), during early stages of development, whereas a shift was observed towards GLA (n-6 type) during maturation (26 percent GLA of total fatty acids).

**9201-0064** Huai, Z.P., Ding, Z.Z., He, S.A. , Sheng, C.G.(Jiangsu Institute of Botany, Nanjing 210014, China) **Research on correlations between climatic factors and diosgenin content in Dioscorea zingiberensis Wright.** *Acta Pharmaceutica Sinica*, v. 24(9): p. 702-706, 1989 (6 ref, Chi, Eng).

The correlations between seven climatic factors and diosgenin content of *Dioscorea zingiberensis* has been reported. It is annual precipitation and mean annual 5 cm

soil temperature that are real principal factors affecting the diosgenin content. The most suitable climatic range for the biosynthesis and accumulation of diosgenin is annual precipitation: 800-900 mm, 850 mm the best, and mean annual 5 cm soil temperature: 15-17 degree C, 16 degree C the best.

**9201-0065** Iwasa, K., Kamigauchi, M., Takao, N.(Kobe Women's College of Pharmacy, Motoyamakita, Higashinada, Kobe 658, Japan) **Metabolism of salsolinol by tissue cultures of some Papaveraceae.** *Phytochemistry*, v. 30(9): p. 2973-2975, 1991 (13 ref, Eng).

(+)-Salsolinol, a substance possibly inducing Parkinsonism and alcoholism, was transformed into the 6- and 7-O-monomethylated salsolinols by various plant tissue cultures of the Papaveraceae. Only 6-O-methylsalsolinol was further N-methylated to provide N-methylisosalsoline.

**9201-0066** Kanbi, V.H., Chakraborty, M.K.(Department of Biochemistry, Gujarat Agricultural University, Anand Campus, Anand 388110, Gujarat, India) **Biochemical changes in developing seeds of isabgol (Plantago ovata Forsk.).** *Indian Journal of Plant Physiology*, v. 33(4): p. 286-293 , 1990 (13 ref, Eng).

Seed dry weight, moisture, ash total lipid and their fatty acid profile, crude protein total pentosans, mucilage matters and the sugar monomers of acid hydrolysed in developing seeds of three isabgol cultivars at six developmental stages have been reported. All three varieties showed similar pattern of changes. The mutant variety had less content of all the constituents. NSL, New Delhi.

**9201-0067** Kaushik, P., Khanna, A.D.(R.U. Medical College, Jaipur 302 002, Rajasthan, India) **Four sterols from in vivo and in vitro tissue cultures of Dolichos lablab L..** *Indian Journal of Pharmaceutical Sciences*, v. 52(6): p. 267-268, 1990 (5 ref, Eng).

Unorganised callus tissue of *D.lablab* raised and maintained by frequent subculturings on revised Murashige and Skoog's medium supplemented with 1 ppm of 2, 4-D and 1 percent Agar (RT) showed presence of four sterols.

**9201-0068** Kaushik, P., Khanna, P.*(Rajasthan Unani Medical College, Jaipur 302002, Rajasthan, India) **Flavonoids from in vivo and in vitro tissue cultures ofDolichos lablab L. and their antifungal screening.** *Journal of Phytological Research*, v. 3(1&2): p. 45-49 , 1990 (12 ref, Eng).

The seeds, stems, leaves and flowers of *D.lablab* were collected and unorganised callus tissue of *D.lablab* raised and maintained by frequent subculturing on revised Murashige and Skoog's medium supplemented with 1 ppm of 2, 4-D and 1 percent Agar (RT), were analysed for their flavonoids (Kaempferol) and quercetin content. The isolated flavonoids were screened for their antifungal activity. The maximum amount of flavonoids was found in the flowers.

**9201-0069** Kikuchi, Y., Irie, M., Yoshimatsu, K., Ishimaru, K., Shimomura, K., Satake, M. , Sueyoshi, S., Tanno, M., Kamiya, S. , Sawada, J.I.*, Terao, T.(Division of Biochemistry and Immunochemistry, National Institute of Hygienic Sciences, 1-18-1, Kamiyoga, Setagaya, Tokyo 158, Japan) **A monoclonal antibody to scopolamine and its use for competitive enzyme-linked immunosorbent assay.** *Phytochemistry*, v. 30(10): p. 3273-3276, 1991 (20 ref, Eng).

A hybridoma clone producing a monoclonal antibody (SC78.H81) against scopolamine was established. The monoclonal antibody was an IgG1(k) antibody with high affinity. The monoclonal antibody was cross-reactive with methylscopolamine and butylscopolamine, and showed weak cross-reactivity with 6beta- and 7beta-hydroxyhyoscyamine. The cross-reaction with L-hyoscyamine, atropine, scopine and DL-tropic acid was very weak. A competitive enzyme-linked immunosorbent assay using SC78.H81 was established to quantify scopolamine. The sensitivity of the assay allowed detection of 20 pg assay (0.2 ng/ml) of scopolamine. The assay was applied to the estimation of scopolamine content in hairy root cultures of *Duboisia* hybrid.

**9201-0070** Kumar, S.S., Nalwadi, V.G. , Basarkar, P.W.(Rice Research Station, Kayamkulam 600502, India) **Influence of moisture stress on the accumulation of phenols in marigold (Tagetes erecta L.).** *Geobios*, v. 18(4): p. 165-168, 1991 (7 ref, Eng).

The induction of moisture stress for a period of 12 days at transplanting and preblooming stages in marigold *T.erecta* exhibited a sharp peak in the accumulation of phenols. The enhanced phenol metabolism led to the biosynthesis of lignin which could act as a mechanism to combat the moisture stress.

**9201-0071** Kuo, Y.H., Lambein, F.(Laboratory of Physiological Chemistry, Faculty of Medicine, State University of Ghent, K.L. Ledeganckstraat 35, B-9000 Gent, Belgium) **Biosynthesis of the neurotoxin beta-N-oxalyl-alpha,beta-diaminopropionic acid in callus tissue of Lathyrus sativus.** *Phytochemistry*, v. 30(10): p. 3241-3244, 1991 (17 ref, Eng).

The biosynthesis of the neurotoxic amino acid beta-N-oxalyl-L-alpha,beta-diaminopropionic acid (ODAP) can be induced in the callus tssues of *L.sativus* by supplying

beta-(isoxazolin-5-on-2-yl)-alanine (BIA) in the liquid medium. 14C-Tracer studies confirm the previous finding that BIA is the precursor for ODAP and indicate that DAPRO may indeed be the short- lived intermediate in this pathway.

**9201-0072** Lambein, F., Kuo, Y.H.(Laboratory of Physiological Chemistry, University of Ghent, KL Ledeganckstraat 35, B-9000 Gent, Belgium) **Recent development in the biochemistry of Lathyrus toxins [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 113-114, 1991 (Eng).

The genus *Lathyrus* produces many non-protein amino acids. The free amino acids stored in the ripe seeds have been used in the chemotaxonomy of the genus. The biosynthesis of beta-N-oxalyl-alpha, beta-diaminopropionic acid, the neurotoxin responsible for human lathyrism was studied in seedlings and in callus tissue of *L.sativus*. A comprehensive biochemical scheme involving the known toxins and isoxazolinones is discussed.

**9201-0073** Lee,C.W.T., Shuler, M.L.(School of Chemical Engineering, Cornell University, Ithaca, NY 14853, USA) **Different shake flask closures alter gas phase composition and ajmalicine production in Catharanthus roseus cell suspensions.** *Biotechnology Techniques*, v. 5(3): p. 173-178, 1991 (6 ref, Eng).

The effect of gas transfer rate on the production of ajmalicine from *Catharanthus roseus* cell suspensions studied by using different types of closures has been discussed. Ethylene accumulated in cultures with limited gas exchange appeared to inhibit the production of ajmalicine. The variability in product yields between replicates has been attributed to gas composition differences. IARI, New Delhi.

**9201-0074** Madhavi, D.L., Prabha, T.N., Singh, N.S., Patwardhan, M.V.(Central Food Technological Research Institute, Mysore 570013, Karnataka, India) **Biochemical studies with garlic (Allium sativum) cell cultures showing different flavour levels.** *Journal of the Science of Food and Agriculture*, v. 56(1): p. 15-24, 1991 (22 ref, Eng).

Garlic *Allium sativum* cell cultures, revealed a total five amino acids precursors and two unidentified ninhydrin-positive compounds. All the five compounds were hydrolysable by allin lyase to yield pyruvic acid. The total flavour substrate index in globulan white callus and semi differentiated green callus was 4 and 13 percent respectively of the original explant. In contrast to the substrate levels, the specific activity of allin lyase enzyme showed half the original activity of the garlic bulb explant. Reincorporation of 14C-label was lower in protein, carbohydrate and lipid fractions with a concomitant higher incorporation in the volatile fraction of semi differentiated cultures. The activity of some enzymes was higher in cultured cells than in garlic bulb.

**9201-0075** Nage Gowda, V., Narayana Gowda, J.V.(Division of Horticultural Sciences, University of Agricultural Sciences GKVK, Bangalore 560 065, Karnataka, India) **Effect of cycocel and maleic hydrazide on the biochemical composition in gundumallige (Jasminum sambac Ait.).** *Progressive Horticulture*, v. 20(3-4): p. 269-273 , 1988 (Recd. 1991, 9 ref, Eng).

Cycocel at 1000 and 2000 ppm increased the N P K, carbohydrate and C/N ratio both at pre and post pruning stages. Significant differences were observed in phosphorus content of leaves in two stages of application. Cycocel treated plants recorded higher P content and highly significant differences in carbohydrate content in leaves of *J.sambac*. Maximum C/N ratio was recorded with cycocel at post pruning chlorophyll- a content was increased with cycocel in both the stages of application. Total cholorophyll content was maximum with maleic hydrazide spray. NSL, New Delhi.

**9201-0076** Pusztai, A., Watt, W.B., Stewart, J.C.(The Rowett Research Institute, Bucksburn Aberdeen AB2 9SB, Scotland, UK) **A comprehensive scheme for the isolation of trypsin inhibitors and agglutinin from soybean seeds.** *Journal of Agricultural and Food Chemistry*, v. 39(5): p. 862-866, 1991 (20 ref, Eng).

A comprehensive scheme is described for the isolation of the major protein antinutrients present in soybean seeds, including two classes of protease inhibitors, and the seed agglutinin. A main feature is that no intermediate freeze drying is necessary during the step-wise recovery of antinutrients. All interfering saccharides are first removed by extraction with aqueous alcohol. The remaining antinutrients are selectively extracted at pH 5-8. By application of this purification scheme, the concerted effects of the protein anti nutrients and possible synergisms in their action on the digestive system will be open for exploration.

**9201-0077** Roja, G., Heble, M.R.* , Sipahimalani, A.T.(Plant Biotechnology Section, Bhabha Atomic Research Centre, Trombay 400 085, Maharashtra, India) **Tissue cultures of Withania somnifera: Morphogenesis and withanolide synthesis.** *Phytotherapy Research*, v. 5(4): p. 185-187, 1991 (10 ref, Eng).

Tissue cultures were established from axillary meristems of the plant *Withania somnifera*. Growth hormones

influenced the morphogenetic responses of the cultures. The explants gave multiple shoots in Murashige and Skoog's (MS) medium supplemented with benzyladenine ,rooting in MS+coconut milk (10 percent) and callus formation in MS+2,4-dichlorophenoxyacetic acid (2.0 ppm). Callus cultures failed to synthesize withanolides. Multiple shoot cultures synthesized significant levels of withanolides and their concentrations varied with different growth hormones.

**9201-0078** Ruyter, C.M., Akram, M., Illahi, I. , Stockigt, J. (Institute of Pharmaceutical Biology, University of Mainz, Staudingerweg 5, D 6500 Mainz 1, Federal Republic of Germany) **Investigation of the alkaloid content of Rauwolfia serpentina roots from regenerated plants.** *Planta Medica*, v. 57(4): p. 328-330, 1991 (16 ref, Eng).

The indole alkaloid content of *R.serpentina* roots from regenerated plants (from stem- and root-callus) was compared with the parental stock. Although the total alkaloid content seems to be slightly higher in the roots from regenerated plants, HPLC-analysis of individual alkaloids indicated that the contents of the alkaloids ajmaline, serpentine, and reserpine are lower than in the roots of the parental stock. The glucoalkaloid raucaffricine was identified as a constituent of all samples, thus providing the first evidence for its occurrence in roots of [Rauwolfia serpentina].

**9201-0079** Salgare, S.A., Acharekar, C.(Department of Botany, Institute of Science, Bombay 400 032, Maharashtra, India) **Effect of industrial pollution (from Chembur) on the chlorophyll content of wild plants-1.** *Journal of Phytological Research*, v. 3(1&2): p. 59-63 , 1990 (10 ref, Eng).

The effect of ambient air from Chembur on the chlorophyll content of plants such as *Amaranthus spinosus, Alternanthera sessilis, Ageratum conyzoides, Blumea eriantha, Cassia tora, Euphorbia hirta, Eclipta erecta, Heliotropium indicum* and *Malachra capitata* has been discussed. Ambient air of Chembur inhibited the chlorophyll content such as chlorophyll- a, chlorophyll-b as well as total chlorophyll of all the species collected from less and highly polluted areas, respectively.

**9201-0080** Sauerwein, M., Flores, H.E. , Yamazaki, T., Shimomura, K.(Tsukuba Medicinal Plant Research Station, National Institute of Hygienic Sciences, 1 Hachimandai, Tsukuba, Ibaraki 305, Japan) **Lippia dulcis shoot cultures as a source of the sweet sesquiterpene hernandulcin.** *Plant Cell Reports*, v. 9(12): p. 663-666, 1991 (13 ref, Eng).

Axenic shoot culture of *L.dulcis* was established on harmone-free MS solid medium containing 3 percent sucrose. The highest hernandulcin content (2.9 percent dry wt) was obtained after 28 days of culture on MS solid medium containing 2 percent sucrose. The addition of chitosan to the culture media enhanced the growth of shoots as well as the production of hernandulcin, especially with the liquid medium. IARI, New Delhi.

**9201-0081** Sauerwein, M., Ishimaru, K.* , Shimomura, K.(Tsukuba Medicinal Plant Research Station, National Institute of Hygienic Sciences, 1 Hachimandai, Tsukuba, Ibaraki 305, Japan) **A piperidone alkaloid from Hyoscyamus albus roots transformed with Argobacterium rhizogenes.** *Phytochemistry*, v. 30(9): p. 2977-2978, 1991 (8 ref, Eng).

The new piperidone alkaloid hyalbidone [2alpha,2'beta-(1,2-ethanediyl)bis-(N-methyl-3-piperidone)] has been isolated from the hairy roots of *H.albus*, induced by transformation Agrobacterium rhizogenes strain MAFF 03-01724. The alkaloid was characterized by its chemical and physical data. Together with the piperidone, eight tropane alkaloids were isolated and identified from their NMR data in comparison with those of authentic samples.

**9201-0082** Sauerwein, M., Shimomura, K.*(Tsukuba Medicinal Plant Research Station, National Institute of Hygienic Sciences, 1 Hachimandai, Tsukuba, Ibaraki, 305, Japan) **Alkaloid production in hairy roots of Hyoscyamus albus transformed with Agrobacterium rhizogenes.** *Phytochemistry*, v. 30(10): p. 3277-3280, 1991 (10 ref, Eng).

Hairy roots of *H.albus* were induced from the shoot cultures by transformation with *A.rhizogenes* strain MAFF 03-01724. The hairy root cultures were tested for growth and alkaloid production (5 tropane alkaloids stimultaneously quantified by HPLC) in various media. Half-strength MS and Gamborg B5 media containing 3 percent sucrose gave the highest alkaloid content (ca 2 percent dry wt), but only poor growth.The hairy roots cultured in the improved medium (Woody Plant medium containing 3 percent sucrose and 15mM KNO3) for 28 days produced over 30 mg tropane alkaloids in one 100 ml flask (ca 0.8 mg 7-beta-hydroxyhyoscyamine, 1.7 mg littorine, 1.7 mg scopolamine, 7 mg 6beta-hydroxyhyoscyamine and 19 mg hyoscyamine in 50 ml liquid medium).

**9201-0083** Schulthess, B.H., Giger, E. , Baumann, T.W.(Institute of Plant Biology, University of Zurich, CH 8008 Zurich, Switerland) **Echinacea: Anatomy, phytochemical pattern, and germination of the achene.** *Planta Medica*, v. 57(4): p. 384-388, 1991 (16 ref, Eng).

The achenes (fruits) of the *Echinacea* species, *E.purpurea*, *E.angustifolia* and *E.pallida* can be differentiated structurally (shape, anatomy) as well as phytochemically

(essential oil components, alkamides). During germination in all three species dodeca-2E,4E,8Z,10E(10Z)-tetraenoic acid isobutylamide (8/9) is mainly formed. Besides this a number of alkamides typical for the root of *E.purpurea* are synthesized in moderate amounts. Also, alkene, derivatives of isovalerianic acid are produced. But neither 2-monoene alkalmides nor polyacetylenes could be detected during achene germination.

**9201-0084** Sen, J., Sharma, A.K.(Centre of Advanced Study, Department of Botany, University of Calcutta, 35 Ballygunge Circular Road, Calcutta 700 019, WB, India) **In vitro propagation of Coleus forskohlii Briq. for forskolin synthesis.** *Plant Cell Reports*, v. 9(12): p. 696-698, 1991 (8 ref, Eng).

*In vitro* shoot multiplication was obtained within 20-25 days from shoot tip explants of 30 days old aseptically germinated seedlings using 2 mg/l of 6-benzylaminopurine (BA). Different auxins supplemented at the level of 0.05 mg/l with BA did not yield better results. The potential of shoot culture and use of micropropagated plants for the production of forskolin has been demonstrated. IARI, New Delhi.

**9201-0085** Sharma, V.K., Kothari, S.L.(Department of Botany, University of Rajasthan, Jaipur 302 004, Rajasthan, India) **Somatic emberyogenesis from callus culture and protoplast isolation and culture in Datura innoxia Mill..** *Journal of Phytological Research*, v. 3(1&2): p. 137-139 , 1990 (6 ref, Eng).

Anthers of *D.innoxia* were cultured on MS medium and large number of embryoids differentiated could germinate to form plantlets, shoots or callus from the entire surface and showed further embryogenesis. Prolific embryogenesis occurred when this callus was sub-cultured on a medium with kinetic-2,4-D. For protoplasts culture, leaf material was taken from the in vitro differentiated plants.

**9201-0086** Sivasubramaniam, K., Prabakaran(National Pulses Research Centre, Vamban, TN, India) **Tropical tetrazolium test for Sekaki (Acacia concinna).** *Van Vigyan*, v. 29(1): p. 5-8, 1991 (5 ref, Eng).

Sekakai seeds (*A.concinna*) were subjected to tetrazolium test in order to bring their viability characteristics. A topography was formed to differentiate between viable and non viable embryos. NSL, New Delhi.

**9201-0087** Spencer, P.A., Towers, G.H.N.(Department of Botany, University of British Columbia, **3529-6270 University Boulevard, Vancouver, BC, Canada V6T 2B1) Restricted occurrence of acetophenone signal compounds.** *Phytochemistry*, v. 30(9): p. 2933-2937, 1991 (24 ref, Eng).

GC-MS analyses of Agrobacterium signal compound mixtures from species belonging to a variety of flowering plant families revealed that the occurrence of virulence-inducing acetophenones may be restricted to members of the Solanaceae. Following wounding, species of *Atropa, Datura, Hyoscyamus, Lycopersicon, Nicotiana, Scopolia* and *Solanum* produced a set of active C6-C2 compounds, whereas genera belonging to other families commonly produced sets of virulence-inducing C6-C1 and C6-C3 acids, esters and/or benzaldehydes.

**9201-0088** Stapleton, A., Allen, P.V. , Friedman, M., Belknap, W.R. (Western Regional Research Center, Agricultural Research Service, US Department of Agriculture, 800 Buchanan Street, Albany, California 94710, USA) **Purification and characterization of solanidine glucosyltransferase from the potato (Solanum tuberosum).** *Journal of Agricultural and Food Chemistry*, v. 39(6): p. 1187-1193, 1991 (44 ref, Eng).

To define the biosynthetic pathways to *Solanum* alkaloids, an approximately 600-fold purification of the enzyme solanidine UDP-glucose glucosyltransferase (SGT) to near homogeneity from potato sprouts of the cultivar Lemhi, has been described. Separation of the two proteins was achieved only by binding the glycosylated patatin to a concanavalin A affinity resin under conditions where the SGT activity did not bind. Analysis of the purified enzyme by SDS/denaturing-PAGE revealed a major protein band of Mr 38,000. The closely related spirosolane alkaloids tomatidine and solasodine were glucosylated at rates 2 and 3 times that of solanidine, respectively, whereas 3-beta-hydroxy steroids lacking a ring nitrogen such as cholesterol, diosgenin, digoxigenin, and beta-sitosterol did not serve as glucose acceptors. No enzymic activity was detected when UDP-galactose was used as a substrate, suggesting either that the pathway to alpha-solanine requires a separate galactosyltransferase activity or that gamma-chaconine (glucosylsolanidine) is first converted to gamma-solanine (galactosylsolanidine) by a specific epipmerase. The significance of these findings for the control of the biosynthesis of glycoalkaloids at the molecular level in Solanaceous plants is discussed.

**9201-0089** Suchorska, K.(Agricultural University, Faculty of Horticulture, 00766 Warsaw, Poland, Nowoursynowska 166, Hungary) **Influence of growth regulators upon the seed germination of parsnip and fennel.** *Herba Hungarica*, v. 30(1-2): p. 68-75, 1991 (10 ref, Eng, Hun).

Effect of Gibrescol, Ergostim and succinic acid on the germination and intensity of seedlings emergence of fennel

and parsnip has been determined. A laboratory experiment for the determination of the optimum concentration of the preparations tested and a field experiment for the determination of the effect of the pre-sowing treatment of seeds on seedlings emergence have been carried out. The reaction of seeds of the plant species investigated was different. Negative results were obtained for fennel. The growth regulators applied in the experiments did not effect the emergence rate nor the number of fennel (*Foeniculum vulgare*) seedlings under field conditions. The pre-sowing treatment of *Pastinaca sativa* seeds with GA3 (500 ppm) accelerated the emergence of plants by about 5 days. In case of the Ergostim and succinic acid no stimulating effect was observed.

**9201-0090** Sumaryono, W., Proksch, P.* , Hartmann, T., Nimtz, M., Wray, V.(Institut fur Pharmazeutische Biologie der TU Braunschweig, Mendelssohnstrasse 1, D-3300 Braunschweig, FRG) **Induction of rosmarinic acid accumulation in cell suspension cultures of Orthosiphon aristatus after treatment with yeast extract.** *Phytochemistry*, v. 30(10): p. 3267-3271, 1991 (21 ref, Eng).

Cell suspension cultures of *O.aristatus* were shown to accumulate rosmarinic acid (RA) at concentrations of 1.0-2.0 micromol/g fr.wt. Addition of yeast extract (4-6g/l) to the liquid growth media resulted in a large increase of RA accumulation in treated cells independent of the growth stage. When cells present in the stationary phase were treated with yeast extract a second phenolic was shown to accumulate which presumably originated by oxidative decarboxylation of RA. Fractionation of yeast extract by acetone precipitation, ion exchange and gel permeation chromatography yielded two active fractions (elicitor A and B) capable of inducing RA accumulation. Both elicitors were shown to be carbohydrate polymers.

**9201-0091** Vasantha, S., Thomas, T.V. , Ramadasan, A., Zachariah, T.J.(National Research Centre for Spices, Marikunnu, Calicut 673 012, Kerala, India) **Drought tolerance in black pepper (Piper nigrum L.) cultivars: An evaluation of physiological parameters.** *Indian Journal of Plant Physiology*, v. 33(4): p. 363-366 , 1990 (5 ref, Eng).

Utility of physiological parameters viz., stomatal diffusive resistance, transpiration rate and leaf water potential in screening drought tolerant types in *Piper nigrum* has been discussed. NSL, New Delhi.

**9201-0092** Vishwakarma, M., Tarar, J.L.(Department of Botany, Institute of Sciences, Nagpur 440 001, Maharashtra, India) **Cytochemical analysis in pollen of Gloriosa superba Linn..** *Biojournal*, v. 2(2): p. 255-260, 1990 (27 ref, Eng).

The palynological investigations of basic metabolites present in pollen grains and pollen tubes of *G.superba* are reparted. The pollen germinated successfully in vitro in sugars (sucrose and glucose) and the pollen tubes with suitable length were selected for cytochemical analysis. The insoluble polysaccharides, cellulose, starch pectic substances, lipids, proteins,RNA and ascorbic acid were observed in pollen grains and pollen tubes. However, lignin could not be localized. NSL, New Delhi.

**9201-0093** Yamazaki, T., Flores, H.E.* , Shimomura, K., Yoshihira, K.(Department of Plant Pathology and Biotechnology Institute, Pennsylvania State University, University Park,Pennsylvania 16802, USA) **Examination of steviol glucosides production by hairy root and shoot cultures of Stevia rebaudiana.** *Journal of Natural Products*, v. 54(4): p. 986-992 , 1991 (18 ref, Eng).

"Hairy root" cultures of *S.rebaudiana*, whose leaves contain the sweet diterpene glycoside stevioside among other steviol glucosides, were induced upon infection with Agrobacterium rhizogenes strain 15834. Steviol glucosides were not produced by the hairy root cultures in the dark. Addition of cytokinins (kinetin and benzyladenine) to solid medium resulted in a morphological change of hairy root cultures in the light into callus. Stevioside was not detected in the cultures. The primary shoot tip cultures from the in vitro cultured plantlets produced stevioside in liquid medium in the light. It is suggested that the organ for the synthesis site of steviol glucosides is leaves, not roots in the whole plants. The shoot tip culture of *S.rebaudiana* in liquid medium may be useful to produce stevioside.

**9201-0094** Zafar, R., Haque, J., Aeri, V.(Department of Pharmacognosy and Phytochemistry, Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi 110062, India) **Amino acids and phytosterols in root culture of (Capsicum annum) Linn..** *Indian Drugs*, v. 28(11): p. 525-526, 1991 (6 ref, Eng).

Cultured root showed the presence of ornithine, glycine, DL dopa and threonine. The cultured root also showed 0.08 percent of the free phytosterols whereas the normal roots from seedlings contained a slightly higher amount of phytosterol (0.098 percent).

## Pharmacognosy

**9201-0095** Alam, M., Joy, S., Dasan, K.K.S. , Bhima Rao, R.(Captain Srinivasa Murti Drug Research Institute for Ayurveda, Arumbakkam, Madras 600 106, TN, India) **Analytical and antitumour studies on Cyavanaprasa.** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 43-49, 1990 (14 ref, Eng).

The physico-chemical characters of Cyavanprasa are summarized. Quantitatively the total alkaloid content was very negligible. It showed moderate effect when the tumour was in the process of formation but there was no effect after the formation of tumour.

**9201-0096** Alam, M., Dasan, K.K.S., Rukmani, B., Rao, R.B.(Captain Srinivasa Murti Drug Institute for Ayurveda, Madras 600106, TN, India) **Experimental studies on the standardisation of curnas (Amalakyadi curna).** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 56-60, 1990 (6 ref, Eng).

Amalakyadi curna prepared by powdering the individual drugs in mortar and pestle showed higher extractive values in organic solvents and solubility in water and alcohol. Chromatography and screening of organic functional groups did not show any difference in mortar and pestle and in mixie prepared curna.

**9201-0097** Basualdo, I., Zardini, E., Ortiz, M.(Facultad de Ciencias Quimicas, Universidad Nacional de Asumcion, CC1055, Asuncion, Paraguay) **Medicinal plants of Paraguay: Underground organs.** *Economic Botany*, v. 45(1): p. 86-96, 1991 (9 ref, Eng).

The underground parts belonging to 13 species in 9 families that are sold as medicinal in the market **4 of Asuncion ("Pettirossi") have been identified. Eleven of those 13 species grow wild in Oriental Paraguay, one is naturalized, and one is only cultivated. These plants are locally used to combat rheumatism, diabetes, hepatitis, syphilis, stomachache, flatulence, arthrosis, parasites, diarrhea, and throatache, and as postfebril cooling, diuretic, and laxative.**

**9201-0098** Bhavsar, G.C., Chauhan, M.G. , Upadhyay, U.M.(Government Pharmacy College, Lakhtar, Surendranagar 382 775, Gujarat, India) **Studies on Kumaryasava.** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 50-55, 1990 (12 ref, Eng).

Total anthraquinones, pH, specific gravity, solid content, alcohol and sugar contents in different samples of Kumaryasava have been reported.

**9201-0099** Gewali, M.B., Pilapitiya, U. , Hattori, M.*, Namba, T. (Research Institute for Wakan-Yaku (Tradition Sino-Japanese Medicines), Toyama Medical and Pharmaceutical University, 2630 Sugitonic, Toyama, 930-01, Japan) **Analysis of a thread used in the Kshara Sutra treatment in the Ayurvedic medicinal system.** *Journal of Ethnopharmacology*, v. 29(2): p. 199-206 , 1990 (14 ref, Eng).

From a Kshara Sutra thread which is used in the therapy of fistula in the Ayurvedic medicinal system, euphol, 3,12-di-O-acetyl-8-O-benzoylingol, 3,12-di-O-acetyl-8-O-tigloylingol, curcumin, p-coumaroylferuloylmethane and di-p-coumaroylmethane were isolated and characterized. In addition, GLC and GC/MS confirmed the presence of euphol B, cycloeucalenol and 24-methylene cycloartanol in the thread. NML, New Delhi.

**9201-0100** Karting, T., Bucar, F., Zarfl, J.(Institut fur Pharmakognosie der-Kerl-Franzens-Universitat Graz, Universitatsplatz 4/1, A 8010 Graz, Osterreich, Austria) **A contribution to the proof of identity of plant drugs discussed for taking up into the osterreichiche Arzneitaxe.** *Scientia Pharmaceutica*, v. 59(2): p. 157-163, 1991 (4 ref, Ger, Eng).

Microscopic and TLC investigations of different samples of five root drugs viz., *Carlina acaulis, Inula helenium, Piper methysticum, Ruscus aculeatus, Urtica dioica*,were carried out to identify the drugs.

**9201-0101** Karting, T., Brauter, A., Berger, H.(Institut fur Pharmakognosie der Karl- Frazens-Universitat Graz, Universitatsplatz, 4/1, A-8010 Graz, Osterreich, Austria) **A contribution to the proof of identity of plant drugs discussed for taking up into the Austrian Pharmacopoeia.** *Scientia Pharmaceutica*, v. 59(2): p. 149-155, 1991 (8 ref, Eng).

Plant drugs *Fragaria vesca, Rubus fruticosus, Rubus idaeus* and*Taraxcum officinale* are discussed for taking up into the Austrian Pharmacopoeia. To prove identity of these drugs microscopic characteristics and TLC finger-prints may be used. In this contribution, the results of microscopic and TLC investigations on different samples of 4 of these drugs has been presented. Using the summarised microscopic and TLC characteristics identity of the listed drugs can be proved.

**9201-0102** Khan, G., Farooqi, M.I.H.(Natural Polymer Chemistry, NBRI, Lucknow 226001, UP, India) **Viscosity behaviour of some galactomanam gums.** *Indian Journal of Pharmaceutical Sciences*, v. 53(4): p. 184-185, 1991 (3 ref, Eng).

Viscosity behaviour of eight samples of leguminous seeds of *Cassia siamea, Cassia alata, Crotalaria juncea, Crotalaria saetiana, Caesalpinia coriaria, Caesalpinia pannosa, Indigofera hirsuta* and *Indigofera tinctoria* have been described so as to determine their utility in pharmaceutical applications.

**9201-0103** Lal, J., Nigam, S.K.(Drug Standardization Research Circuit, Central Council for Research in Unani Medicine, National Botanical Research Institute, Lucknow, UP, India) **On the pharmacognosy and SEM standardization of fruits of Cichorium intybus Linn.**. *Journal of Plant Anatomy and Morphology*, v. 5(1): p. 51-65, 1988 (Recd. 1991, 32 ref, Eng).

External morphology, histology, scanning electron microscopic studies of the surface of achenes, preliminary phytochemical studies, fluorescence analysis of powdered drug under UV and thin layer chromatographic analysis of fruits of *C.intybus* have been investigated to fix the pharmacognostic standards. NSL, New Delhi.

**9201-0104** Li, S.L., Qiao, C.Z., Su, Z.W. , Li, C.H., Zhang, Q.H. (School of Pharmacy, Second Military Medical University, Shanghai 200 433, China) **Diagnostic significance of the cuticular patterns on leaf surface of Sarcandra glabra.** *Acta Pharmaceutica Sinica*, v. 25(9): p. 717-720, 1990 (5 ref, Chi, Eng).

The cuticular patterns on leaf surface of *S.glabra* were studied with scanning electron microscope. It was found that the cuticular patterns vary not only with the district of specimen collection, but also with the developmental stage of the leaf. The characteristics of the cuticular patterns are described in detail with 2 plates of illustrations.

**9201-0105** Pataskar, R.D., Yelne, M.B., Sharma, P.C., Mehendale, V.V.. **'Jitasaya' (Hamiltonia suaveolens Roxb.)- A tribal remedy for diabetes.** *Bulletin of Medico-Ethnobotanical Research*, v. 11(1-4): p. 103-109, 1990 (9 ref, Eng, Mar, Eng).

A market survey to confirm the identity of the drug with crude drug dealers was conducted. It was found that the drug was being sold along with pamphlets recommending its use for the treatment of diabetes. Market samples of the drug Jitasaya mooli were collected and matched with the genuine roots of *H.suaveolens*, to which they tallied morphologically. A brief account of morphological features of the plant is given along with mode of administration and doses.

**9201-0106** Saxena, R.B., Dholakia, M.V.(Drug Standardisation Research Project, CCRAS, Dhanvantri Mandir, Jamnagar 361008, Gujarat, India) **Standardisation of Dasmula taila used in panchakarma.** *Bulletin of Medico-Ethnobotanical Research*, v. 11(4): p. 84-95, 1990 (8 ref, Eng, Hin).

Determination of refractive index, iodine value, acid value, saponification value etc. is primary standard method for identification of a particular taila. These parameters indicate the changes of physico-chemical characteristic of the sneha dravya used in the preparation of taila. The saponification, unsaponification matter, murchhita tila taila and Dasmula taila have been identified by TLC and PC, suitable solvents, spray reagents have been determined or developed. Separation of taila and resin from Dasmula taila, comparative study of tila taila, murchhita tila taila and Dasmula taila, and effect of packing for Dasmula taila have also been studied.

**9201-0107** Saxena, R.B., Dhyani, P.L., Mehta, H.C.(Drug Standardisation Research Project, CCRAS, Dhanvantari Mandir, Jamnagar 361 008, Gujarat, India) **Standardisation of Pancaguina taila.** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 102-107, 1990 (6 ref, Eng).

Physiochemical characters of Pancaguna taila has been reported. Thermodynamical parameters shwoed its exothermic reaction, which on applying externally emits mechanical heat.

**9201-0108** Sezik, E., Baykal, T.(Gazi Universitesi, Eczacilik Fakultesi, Ankara, Turkey) **The origin of Maras, Salep.** *Turkish Journal of Pharmacy*, v. 1(1): p. 10-16, 1991 (12 ref, Tur, Eng).

Tubers of *Orchis anatolica*, *O.mascula*, *O.spitzelii*, *O.tridentata*, *O.morio*, *Anacamptis pyramidalis*, *Dactylorhiza romana*, *Himantoglossum affine*, and *Ophrys holosericea* are used as Salep, a folk medicine in Kahraman Maras, Turkey. *Orchis palustris*, *O.cariophora* and *Dactylorhiza osmanica* give Salep of low quality while *Ranunculus ficaria* and *Colchicum cilicicum* are reported as false Salep.

**9201-0109** Sharma, P.C., Mehendale, V.V. , Yelne, M.B.(JNA. M P G & H., Kothrud, Pune 411 029, Maharashtra, India) **Kocha (Lepidagathis cristata Willd.) a traditional drug for measles.** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 38-42, 1990 (Eng).

Morphological characters, mode of preparation and administration, doses and uses of *L.cristata* in the treatment of measles have been reported.

**9201-0110** Yelne, M.B., Sharma, P.C.(Jawaharlal Nehru Ayurvedic Medicinal Plants Garden and Herbarium, Kothrud, Pune 411029, Maharashtra, India) **Pharmacognostic study of Brahati (Solanum violaceum Ort.)-1. Root & fruit.** *Bulletin of Medico-Ethnobotanical Research*, v. 1(1-4): p. 70-83, 1990 (12 ref, Eng).

The detailed pharmacognosy of root and fruit has been studied. The study includes morphological, histological and physicochemical observations including physical constant values, behaviour of powder drug with different

chemical reagents, fluorescence characteristics etc. The characters found to be useful in proper identification of the drug are discussed.

**9201-0111** Zhang, J.S., Li, S.H., Lou, Z.C.(School of Pharmacy, Beijing Medical University, Beijing 100083, China) **Morphological and histological studies of Chinese Ephedra, Ma Huang. II. Species produced in southwestern China and other species.** *Acta Pharmaceutica Sinica*, v. 25(1): p. 54-65, 1990 (4 ref, Chi, Eng).

The morphological and histological characters of crude drugs derived from *E.likiangensis, E.likiangensis* f. *marirei, E.saxatilis, E.gerardiana, E.gerardiana* var. *congesta, E.minuta, E.minuta* var. *dioeca, E. lepidosperma, E.lomatolepis* and *E.intermedia* var *tibetica* are described, compared and illustrated with line drawings. A key for identification of all the crude drugs derived from Chinese *Ephedra*) spp. is presented.

**9201-0112** Zhang, J.S., Tian, Z., Lou, Z.C.(School of Pharmacy, Beijing Medical University, Beijing 100 083, China) **Quality evaluation of twelve species of Chinese Ephedra (Ma Huang).** *Acta Pharmaceutica Sinica*, v. 24(11): p. 865-871 , 1989 (10 ref, Chi, Eng).

The contents of six *Ephedra* alkaloids in 12 species of Chinese *Ephedra*. The contents of alkaloids vary greatly amongst the species studied. The contents of total alkaloids are higher and ephedrine is the main component in samples derived from *E.sinica, E.equisetina, E.monosperma* and *E.intermedia* var. *tibetica* but in *E.intermedia* and *E.lomatolepis* the content of pseudoephedrine is higher than that of ephedrine. Methylephedrine content is higher in *E.intermedia* var. *tibetica* produced in Xizang (Tibet) and in *E.sinica* produced in north estern China than that in other species. *E.przewalskii* and *E.lepidosperma* contained so little alkaloids that they are considered unsuitable to be used as the drug Ma Huang. The cultivated *Ephedra sinica* showed lower alkaloids than that of growing wild.

## Clinical Studies

**9201-0113 . Case history [Letter to the editor].** *British Journal of Phytotherapy*, v. 1(2): p. 34-35, 1990 (Eng).

A case of genital herpes has been reported. The drug 'Phytokol' capsules in Holland and Barrett subtitled *Echinacea purpurea* prepared by Arkopharma helped to arrest and eradicate about 80 percent of the disease.

**9201-0114** Abhang, R.Y., Kulkarni, P.H.(Jnana Prabodhini, 510 Sadashiv Peth, Pune 411030, Maharashtra, India) **A study to evaluate the efficacy of Kasadamana (an Ayurvedic suksma medicine) in patients of Kasa.** *Deerghayu International*, v. 5(19): p. 4-6, 1989 (Recd. 1991, 2 ref, Eng).

Kasadamana [a composite drug prepared from 3x tinctures of *Adhatoda vasica, Clerodendron serratum, Inula racemosa* and *Solanum xanthocarpum*] was investigated in 62 cases of Kasa. The drug has shown encouraging results in new cases of Kasa especially Kaphaja variety. It has been proved to be an effective expectorant and antitussive remedy.

**9201-0115** Bhattathiri, P.P., Radhakrishnan, P. , Balachandran, P., Warrier, P.K.(Clinical Research Unit(Ay.), Arya Vaidya Sala Hospital, Kottakkal 676 503, Kerala, India) **Effect of Hingutriguna taila in hook worm infestation.** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 90-96, 1990 (4 ref, Eng).

Hingutriguna taila consisting of *Ferula asafoetida, Ricinus communis* and *Allium sativum* when given to male patients in the dose of 5 ml daily for 5 days, was found effective in eradicating hook worm infestation.

**9201-0116** Chakrabarti, R.N., Dutta, K. , Sikdar, S., Ghosh, K. (Department of Pathology and Epidemiology, Chitaranjan Cancer Institute, 37, S.P. Mukherjee Road, Calcutta 700 026, WB, India) **Smokeless tobacco and premalignant and malignant lesions of the oral cavity.** *Indian Journal of Medical Sciences*, v. 45(10): p. 273-275, 1991 (6 ref, Eng).

Prevelance of oral carcinoma and dysplasia in 3205 smokeless tobacco users and non-users has been compared. Of the smokeless tobacco users, 1.96 percent had oral carcinoma compared with 0.36 percent of non-users. The prevelance of oral dysplasia in the user's group was 14.4 percent as compared with 6.85 percent in the group of non-users. NSL, New Delhi.

**9201-0117** Fletcher-Hyde, F. **Herbal remedies influencing the heart and circulation: Part 1(heart diseases).** *British Journal of Phytotherapy*, v. 1(1): p. 20-23 , 1990 (27 ref, Eng).

Plant drugs have been used in the teatment of heart diseases. Case histories of some patients treated by plant drugs are given. Herbal remedies effective in heart disease include the following plants: *Convallaria majalis, Selenicereus grandiflorus, Leonurus cardiaca, Sarothamnus scoparius, Adonis vernalis* and *Scrophularia nodosa.*

**9201-0118** Fletcher-Hyde, F.(Maranatha, 20 Higher Green, Great Glen, Leicester, UK) **Herbal remedies influencing the heart and circulation: Part 2 (Hypertension).** *British Journal of Phytotherapy*, v. 1(2): p. 14-16 , 1990 (25 ref, Eng).

Herbal remedies are frequently used in combination. It has been observed that *Tilia platyphylla, Viscum album* and *Crataegus oxycanthoides* have a synergistic hypotensive effect when prescribed together. Comparative study of these drugs and of *Rauwolfia serpentina* has been assessed in clinical trials.

**9201-0119** Jain, J.P., Naqvi, S.M.A., Sharma, K.D.(R R C (Ayurveda), Nagpur, Maharashtra, India) **A clinical trial of volatile oil of Curcuma longa Linn.(Haridra) in cases of bronchial asthma (Tamaka Swasa).** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 20-30, 1990 (10 ref, Eng).

Volatile oil of *Curcuma longa* when given orally was found effective in the treatment of bronchial asthma than in cases when given intramuscularly.

**9201-0120** Karnick, C.R., Kulkarni, M.(Clinical and Experimental Research, Ayurvedic Division, Wockhordt Limited, Aurangabad, Maharashtra, India) **Clinical evaluation of Ayurvedic drugs on vitiligo (leucoderma).** *Maharashtra Medical Journal*, v. 37(9-12): p. 131-133 , 1990 (6 ref, Eng).

Leucoderma cream and capsules prepared from *Psorlea corylifolia, Zingiber officinale, Eclipta alba, Punica granatum, Terminalia chebula* and sulphur were investigated clinically in 40 vitiligo patients. Oral administration of capsules (1 capsule twice a day) and application of ointment twice a day produced 40, 50, 60 and 66 percent cure rate after 3, 6, 9 and 12 month therapy respectively. NSL, New Delhi.

**9201-0121** Kawatra, A., Kapoor, A.C.*, Seghal, S.(Department of Foods and Nutrition, Haryana Agricultural University, Hisar, Haryana, India) **Hypocholesterolemic effect of guargum in overweight adults.** *Plant Foods for Human Nutrition*, v. 41(3): p. 241-245 , 1991 (** ref, Eng).

The present investigation was undertaken to study the effect of guargum on plasma cholesterol levels of overweight adults. The consumption of 15 g guargum [a mucilage type dietary fibre obtained from the endosperm layer of seeds of *Cyamposis tetragonoloba*] with normal diet for six weeks produced significant reduction in plasma total cholesterol, LDL-cholesterol and total cholesterol to HDL-cholesterol ratio. However, HDL-cholesterol levels were not effected by fibre intake.

**9201-0122** Kothari, S.L., Sharma, R. , Bhotmange, M.G.(Academy of Nutrition Improvement, Wardha Road, Nagpur 444 012, Maharashtra, India) **To study regular consumption of Kesari dal(***Lathyrus sativus***)** and its effect on health [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, 24-28 Nov., 1991]. *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 167, 1991 (Eng).

Health status of the village population of Maharashtra using Kesari dal (*L.sativus*) since birth, has been studied. Information from 18650 persons belonging to 4 districts of Maharashtra and 2 distircts of MP was gathered. Results of the study indicate that the intake of Kesari dal in lieu of any other dal by any age group is not harmful.

**9201-0123** Kulkarni, P.H.(Institute of Indian Medicine, 36, Kothrud, Pune 411 029, Maharashtra, India) **Clinical trials of Ayurvedic formulations prepared by Purnarka (total extract) method.** *Deerghayu International*, v. 6(24): p. 8, 1990 (Eng).

Concept of using total plant extract (total of extracts obtained with alcohol, chloroform, ether etc.) in medicine is described. Purnarka of various single and composite drugs such as Rasnik (Shatavari, Ashwagandha, Triphala, Trikut, as tonic), Sonamukhi, Kutaki, Triphala (for constipation), Amalaki (for Amlapitta), Shunthi (for abdominal pain) and Nishottar (for constipation) have been analyzed chromatographically and evaluated clinically. Both powder and total extracts have same chemical composition and exhibited similar clinical efficacy. This Parnarka is a new concept in pharmacy.

**9201-0124** Lahankar, M.A., Rehman, M.K.(R.A. Podar Medical College, Worli, Bombay 400 018, Maharashtra, India) **Preliminary clinical study of some Ayurvedic medicinal plants on gum bleeding.** *Deerghayu International*, v. 6(21): p. 5-7, 1990 (9 ref, Eng).

Local application of 1g powder 0f *Juglans regia*(bark), *Zanthoxylum alatum*(bark), *Mimusops elengi*(bark) and *Hibiscus abelmoschus*(seeds) mixed with honey, twice a day, gave relief in 8 out of 10 patients. Swelling was relieved in 4 days and gum bleeding in 8 days. Discharge from the gums disappeared in 10 days and foul smell in 15 days.

**9201-0125** Mustafa, T., Srivastava, K.C.(Institute of Biology, Odense University, Campusvej 55, DK 5230 Odense, M., Denmark) **Ginger (Zingiber officinale) in migraine headache.** *Journal of Ethnopharmacology*, v. 29(3): p. 267-273 , 1990 (47 ref, Eng).

Ginger is reported in Ayurvedic and Tibb systems of medicine to be useful in neurological disorders. Case of a 42 year old migraine patient who was prescribed to consume 500-600 mg ginger powder in plain water at the onset of migraine attack is described. Ginger powder aborted the effect of migraine headache within 30 minutes. Use of 1.5-2

g powder drug per day for 3-4 days after attack of migraine decreased the frequency of attacks markedly. NML, New Delhi.

**9201-0126** Oswal, G.D.(1215, Bhawani Peth, Palkhi Chowk, Pune 411 002 Maharashtra, India) **Durva therapy for chronic idiopathic thrombocytopenic purpurea and bone marrow depression.** *Deerghayu International*, v. 6(24): p. 2-5, 1990 (Eng).

Fresh extract of *Cynodon dactylon* has been investigated clinically in 10 patients of idiopathic thrombocytopenic purpurea (ITP). The drug gives remissions for a longer period of time. The drug possibly stimulates bone marrow and acts as a haemostate and arrests bleeeding by acting on defective capillary walls. Durva also controlled haematuria in a few patients. In patients with bone marrow depression, it increases the platelet count and white blood cells. The drug was safe and had no side effects.

**9201-0127** Panda, M.(Department of Shalyasalakya, Gopabandhu Ayurveda Mahavidyalaya, Puri 752002, Orissa, India) **The effect of Laksha Guggulu in the clinical management of fractures.** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 7-19, 1990 (8 ref, Eng).

Laksha Guggulu containing *Commiphora mukul, Terminalia arjuna, Withania somnifera, Vitis quadrangularis* and *Grewia hirsuta* clinically tried on twelve patients for 13-40 days, showed antiinflammatory effects, relief in symptoms and healing of simple fractures.

**9201-0128** Pandey, P.N., Das, U.K.(C R I(Ayurveda) Unit I, Bhubaneswar 751 009, Orissa, India) **Therapeutic assessment of Shakhotaka ghana Vati on Slipada (filariasis).** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 31-37, 1990 (9 ref, Eng).

Sakhotaka Ghana Vati *Streblus asper* powder @ 500 mg thrice daily, with water for three months given orally to 25 patients was found effective in filariasis and microfilaremia.

**9201-0129** Paranjpe, P., Patki, P., Patwardhan, B.* (Interdisciplinary School of Ayurvedic Medicine, University of Poona, Pune 411007, Maharashtra, India) **Ayurvedic treatment of obesity: A randomized double-blind, placebo-controlled clinical trial.** *Journal of Ethnopharmacology*, v. 29(1): p. 1-11, 1990 (18 ref, Eng).

Seventy obese subjects were randomized into four groups. Ayurvedic drug treatments (Triphala guggul 250 mg tablet tds with lukewarm water before meals; Gokshurdi guggul 250 mg tablet tds before meals; Sinhnad guggul 100 mg tablet tds before meals; and Chandraprabhavati 250 mg tablet tds before meals) were given for 3 months while one group received placebo). A significant weight loss was observed in the drug treated groups. Skin fold thickness, hip and waist circumferences; and serum cholesterol and triglyceride levels were decreased in the drug treated groups. No side effects of any kind were observed during the treatment period. Composition of the composite drugs has been tabulated. NML, New Delhi.

**9201-0130** Reuter, H.D.(Klinik 1 fur Medizin der Universitalzu Koln, Josephi-Stelzmann-Strasse 9, D-5000 Koln 41, Germany) **Herbal drugs and isolated compounds from medicinal plants with antithrombotic effects.** *British Journal of Phytotherapy*, v. 1(2): p. 17-21 , 1990 (13 ref, Eng).

Many herbal drugs and their active constituents are used for the treatment of arterial and venous diseases. While disorders of veins can be treated symptomatically, arterial diseases may be cured and prevented by suitable measures. Herbal drugs used for diseases of veins are: *Aesculus hippocastanum, Ruscus aculeatus, Sarothamnus scoparius, Fagopyrum esculentum, Ruta graveolens* and *Melilotus officinalis*. For prevention and therapy of arterial diseases, the drugs used are *Allium sativum, Ammi visnaga, Citrus spp., Crataegus oxyacantha,Ginkgo biloba, Ruta graveolens, Vinca minor* and *Viscumalbum.*

**9201-0131** Savargaonkar, V.V., Karanjkar, A.M. , Kulkarni, P.H. (Institute of Indian Medicine, 36, Kothrud, Pune 411 029, Maharashtra, India) **Action of "Sushama"(Sukshma medicine).** *Deerghayu International*, v. 6(24): p. 5, 1990 (Eng).

Action of Sushama (equal amount of extracts of *Ocimum sanctum* and *Nyctanthes arbor-tristis* in double the amount of alcohol kept for one week) has been studied in 30 cases of eczema. The drug was used in ointment form topically as well as in pills form orally. Encouraging results were obtained in 90 percent cases.

**9201-0132** Singh, R.H., Nath, S.K., Behere, P.B.(Department of Kayachikitsa, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, UP, India) **Depressive illness a therapeutic evaluation with herbal drugs.** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 1-6, 1990 (12 ref, Eng).

Two herbal drugs Asvagandha *Withania somnifera* and Kapikacchu *Mucuna pruriens* clinically tried in 25 cases of depressive illness for two months period, showed notable symptomatic improvement, decrease in the degree of anxiety and depression.

**9201-0133** Sivaprakasam, K., Yasodha, R. , Anandan, T., Rao, K.K., Veluchamy, G.(Drug Research Scheme, Central

Research Institute for Siddha, Arumbakkam, Madras 600 106, TN, India) **Screening of certain Siddha drugs in Venkuttam (vitiligo).** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 66-71, 1990 (3 ref, Eng).

Therapeutic efficacy of Ponnimilai chendooram and Karpogi paste in the management of forty one cases of leucoderma has been discussed. Both the drugs did not show encouraging results.

**9201-0134** Spencer, P., Allen, C., Kisby, G. , Ludolph, A., Riepe, M., Roy, D.N.(Centre for Research on Occupational and Environmental Toxicology, Oregon Health Sciences University, Portland, Oregon 97201, USA) **Lathyrism: Recent clinical and experimental studies on etiology and prevention [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 112, 1991 (Eng).

Lathyrism is caused by prolonged ingestion of grasspea (*Lathyrus sativus*) and is linked to an exogenous excitatory amino acid, beta-N-oxalyl amino-L-alanine (BOAA). However, another component of *Lathyrus* seedling gamma-(isoxazolin-5-on-2yl)-butyric acid showed no physiological activity. Efforts are being made to develop a non-toxic strain of *L.sativus*.

## Pharmacology Toxicology

**9201-0135 . How to avoid sorghum poisoning of cattle ?.** *Farmers' Journal*, v. 10(10,11,12): p. 23, 25, 1991 (Eng).

Young plants of *Sorghum* contain a cyanogenic glucoside, viz., 'dhurrin'which has a lethal effect on cattle fed on it. Young seedlings upto 30 days old and new shoots near the soil surface have been found to contain higher concentration of 'dhurrin'. Its concentration increases in the morning and decreases in the afternoon. To be on the safe side, the crop should be harvested after flowering and never before 45-50 days of sowing. Moreover, [Sorghum] poisoning can be treated with molasses and i.v. injection of sodium thio-sulphate.

**9201-0136** Abad, M.J., Bermejo, P., Villar, A.*(Department of Pharmacology, Faculty of Pharmacy, University Complutense, 28040 Madrid, Spain) **Antiinflammatory and anti-ulcerogenic activities of the organic extracts of Tanacetum microphyllum DC. in rats.** *Phytotherapy Research*, v. 5(4): p. 179-181, 1991 (16 ref, Eng).

Extracts of *T.microphyllum* have been investigated for antiinflammatory and antiulcerogenic activity in the rat. In adjuvant-carrageenan-induced inflammation (ACII), orally administered organic extracts of *T.microphyllum* (hexane, dichloromethane, ethyl acetate and methanol) inhibited both the acute and chronic phases of this experimental model of inflammation, but mainly the chronic phase; the dichloromethane extract was as effective as phenylbutazone. Prior oral administration of *T.microphyllum* organic extracts prevented the ulcerogenic effect of orally administered indomethacin. Again, the dichloromethane extract exhibited the greatest activity.

**9201-0137** Abraham, S., Akbarasha, M.A.(School of Life Sciences, Bharathidasan University, Tiruchirapalli 620 024, India) **Male reproductive toxicity of vincristine [Abstract of paperpresented at the 2nd Congress of Toxicology in DevelopingCountries held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 244, 1991 (Eng).

Male reproductive toxicity of vincristine (*Catharanthus roseus*)was studied in animal models. Vincristine sulphate was administered at two different dose levels 10 microg and 20 microg per male rat per day for 15 days. Control rats received the vehicle. On the 16th day 50 percent of the rats from each group were sacrificed, to remove the testes and the accessory reproductive organs. The remaining rats were left untreated for over one spermatogenic cycle, to study the recovery, if any. The treatment resulted in regression of the testis and accessory reporductive glands, decrease in gonadosomatic index, involution of seminiferous tubules, absence of sperm and meiotic elements in the germinal epithelium, restriction in the number of layers in the germinal epithelium, occurrence of hypertypic giant cells and regressive/degenerative changes in caput and cauda epididymides, seminal vesicle, prostate gland and coagulating gland. The effect was more acute in the higher dose group. The study reveals toxic effect of vincristine on the entire reproductive system of male rat. On cessation of treatment and after one spermatogenic cycle, the rats exhibited only partial recovery.

**9201-0138** Adams, N.R.(CSIRO Division of Animal Production Private Bag, PO Wembley, Western Australia 6014, Australia) **Permanent infertility in ewes exposed to plant oestrogens.** *Australian Veterinary Journal*, v. 67(6): p. 197-201 , 1990 (39 ref, Eng).

Oestrogenic compounds in subterranean clover (*Trifolium species*) have been recognised to cause reproductive problems in sheep in Australia for over 40 years. The extent of losses associated with permanent infertility, epidemiology of the problem, with the aim of developing economic control measures have been summarised. Agronomic approaches have been used to combat the "clover disease" but further progress may depend on the development of animal based solutions.

**9201-0139** Addy, M.E., Burka, J.F.(Department of Biochemistry, University of Ghana, Legon, Ghana) **Effect of Desmodium adscendens fraction 3 on contractions of respiratory smooth muscle.** *Journal of Ethnopharmacology*, v. 29(3): p. 325-335 , 1990 (14 ref, Eng).

The third flash chromatography fractions prepared from an aqueous extract of *D.adscendens* (DAF3) inhibited both the early and late phases of antigen-induced contractions of tracheal spirals and lung parenchymal strips, dose-dependently. No effect was observed on arachidonic-induced contractions. The results suggest that DAF3 may inhibit the release of free arachidonic acid. NML, New Delhi.

**9201-0140** Adjibade, Y., Saad, H., Kuballa, B. , Beck, J.P., Sevenet, T., Cabalion, P. , Anton, R.*(Universite Louis Pasteur, Faculte de Pharmacie, Laboratoire de Pharmacognosie, B.P.24, 67401 Illkrich Cedex, France) **In vitro cytotoxicity of polyindolenine alkaloids on rat hepatoma cell lines. Structure activity relationships.** *Journal of Ethnopharmacology*, v. 29(2): p. 127-136 , 1990 (12 ref, Eng).

New groups of polyindolenine alkaloids have been isolated from new species of the tribe Psychotriae(Rubiaceae). The cyto-inhibitory effects of these compounds on tumoral cell lines have been thoroughly investigated and thus allow the statement of relationships between some original structural patterns and the observed biological effects.

**9201-0141** Afifi, F.U., Al-Khalil, S.*, Aqel, M., Al-Muhteseb, M.H. , Jaghabir, M., Saket, M., Muheid, A.(Faculty of Pharmacy, University of Jordan, Amman, Jordan) **Antagonistic effect of Eryngium creticum extract on scorpion venom in vitro.** *Journal of Ethnopharmacology*, v. 29(1): p. 43-49 , 1990 (15 ref, Eng).

The antivenom activity of aqueous extracts of roots of *E.creticum* has been evaluated using isolated rabbit and guinea pig jejunum and trachea. The extract caused a dose-related inhibition of tracheal and jejunal contractions induced by the scorpion venom and inhibited the spontaneous movements of the jejunum. This inhibitory effect may support the use of *E.creticum* in folk medicine as a treatment for scorpion stings. NML, New Delhi.

**9201-0142** Agte, V., Joshi, S.(Maharastra Association for the Cultivation of Science, Law College Road, Pune 411004, Maharastra, India) **In vitro binding of bile salts with plant fibres.** *Journal of Food Science and Technology*, v. 28(4): p. 226-229, 1991 (12 ref, Eng).

Dietary fibre may be a protective factor in human diseases. In vitro binding of bile salts with 5 and 10m mole by 27 dietary fibres from leaf vegetables. Raddish, onion, spinach, shepu, ambat chuka, colcasia, amaranth, lettuce, fenugreek, capsicum, cluster beans, cabbage, cauli flower, french bean, pulses such as bengal gram, moth bean, peas, red gram, dhal, cowpea etc., indicated that these plant fibres behave similarly within a group but differ each other as a group. Leafy vegetables showed the highest percent binding for both the bile salts, followed by pulses, cereals and vegetables. Binding of bile salts is mainly contributed by hemicellulose component of plant fiber. NSL, New Delhi.

**9201-0143** Agwu, I.E., Akah, P.A.*(Department of Pharmacology and Toxicology, University of Nigeria, Nsukka, Nigeria) **Tabernaemontana crassa as a traditional local anaesthetic agent.** *Journal of Ethnopharmacology*, v. 30(1): p. 115-119 , 1990 (15 ref, Eng).

The hot water extract of the leaves of *T.crassa* appears to contain pharmacologically active principles with local anaesthetic properties. The intensity of anaesthesia produced by *T.crassa* appears to be dose-related and to compare well with that of procaine. The extract which gives positive reactions for tannins, saponins, alkaloids, glycosides, fixed oil and proteins exhibits anaesthetic activity in guinea-pigs (twitch response of skin) and frogs (foot with drawl reflex). NML, New Delhi.

**9201-0144** Akintonwa, A., Essien, A.R.(Toxicology Unit Department of Pharmacology, College of Medicine, University of Lagos, Lagos, Nigeria) **Protective effects of Garcinia kola seed extract against paracetamol-induced hepatotoxicity in rats.** *Journal of Ethnopharmacology*, v. 29(2): p. 207-211 , 1990 (10 ref, Eng).

*G.kola* seed extracts when administered at 100 mg/kg three times a day for 5 consecutive days reduced paracetamol (800, 1000, 1200 mg/kg) induced lethality from 50,90 and 100 percent to 0, 20 and 40 percent, respectively. There was a significant reduction in the liver enzymes SGOT and SGPT and histology scores. NML, New Delhi.

**9201-0145** Al-Bekairi, A.M., Shah, A.H.* , Qureshi, S.(Central Drug and Food Analysis Labs., P.O. box 59082, Riyadh 11525 (Saudi Arabia)) **Effect of Allium sativum on epididymal spermatozoa, estradiol-treated mice and general toxicity.** *Journal of Ethnopharmacology*, v. 29(2): p. 117-125 , 1990 (45 ref, Eng).

A water extract of *A.sativum*(garlic) was given to male and female mice in drinking water (100 mg/kg/day) for three months. There was a significant increase in the weight of seminal vesicles and epididymides of male animals as compared to controls and the sperm count was significantly elevated. There was no increase in the body

weight of the test animals, and weights of heart, liver and spleen were reduced as compared to controls. Haematological studies revealed an increase in WBC and a decrease in RBC levles of the test animals. Three-day intraperitonial treatment (500 mg/kg) with the *A.sativum* extract failed to exhibit any estrogenic or antiestrogenic activity. NML, New Delhi.

**9201-0146** Al-Khalil, S., Agel, M.*, Afifi, F. , Al-Eisawi, D. (Faculty of Pharmacy, The University of Jordan, Amman, Jordan) **Effects of an aqueous extract of Ferula ovina on rabbit and guinea pig smooth muscle.** *Journal of Ethnopharmacology*, v. 30(1): p. 35-42 , 1990 (19 ref, Eng).

The aqueous alcoholic extract of the whole plant of *F.ovina* inhibited the spontaneous movements of rabbit jujunum and guinea pig ileum and the contractions induced by acetylcholine. The extract also inhibited the contractions of rabbit trachealis muscle induced by acetylcholine and the contractions of guinea pig trachealis mucle induced by histamine. These inhibitions were dose-dependent and reversible. However, the aqueous extract did not inhibit the contractions of rabbit and guinea pig aortic rings induced by norepinephrine. These data suggest that the plant has nonspecific anticholinergic, and antihistaminic antispasmodic effects. NML, New Delhi.

**9201-0147** Alarcon de la Lastra, C., Martin, M.J. , Motilva, V. (Departamento de Farmacia y Tecnologia Farmaceutica, Laboratorio de Farmacodinamia, Facultad de Farmacia, Universidad de Sevilla, 41012, Spain) **Effects of naringenin and silymarin on urinary excretion of water and electrolytes in rats.** *Phytotherapy Research*, v. 5(4): p. 191-193, 1991 (11 ref, Eng).

The effects of two flavonoid derivatives, naringenin, a naturally occurring flavone glycoside from Kino fruit (*Eucalyptus maculata*) and silymarin , a major constituent of *Silybum marianum* on urinary excretion of water and electrolytes were investigated in isotonic saline loaded rats. Both compounds, especially naringenin, showed a moderate diuretic activity, in comparison with furosemide, increasing significantly the renal loss of sodium, chloride and postassium. With respect to silymarin, although urinary excretion was significantly lower, it caused a marked decrease in potassium excretion. These results indicate that naringenin has a diuretic behaviour similar to moderate-efficiency diuretic agents and silymarin to potassium-sparing diuretics.

**9201-0148** Almeida, V.Y., Cladcron de la Barca, A.M. , Valencia, M.E.(Centro de Investigacion en Alimentacion y Desarrollo, AC, PO Box 1735, Carr. La Victoria Kui 0.6, Hermosillo, Sonora, Mexico) **Effect of different heat treatments on the antinutritional activity of Phaseolus vulgaris (variety ojo de cabra) lectin.** *Journal of Agricultural and Food Chemistry*, v. 39(9): p. 1627-1630, 1991 (22 ref, Eng).

*P.vulgaris* bean lectin was partially characterised and the nutritive value of raw and heat processed beans were investigated in relation to this compound. The lectin purified by affinity chromatography on immobilized fetulin presented two bands of about 30 k Da in SDS-PAGE. It had an unusual high hemagglutinating capacity and it was inhibited by fetulin and galactose. The lectin activity decreased 84 percent by dry heating and 99.8 percent by cooking. Although biological values of cooked beans were similar to those of other beans, toasting affected the PER and weight of rats, but not the NPR. Raw beans were highly toxic; 33 percent of animals died at 10 days. The NPR values was negative, and this group lost more weight than N-free diet group.The histological examination revealed that the dietary lectin was bound to the mucosal surface coat of the duodenum and jejunum.

**9201-0149** Appaji Rao, V.N., Palaniswami, K.S. , Khan, G.A.R. , Gnanabaranam, J.F. , Krishnaswami, G.A.R.(Department of Animal Disease Investigation and Control, Madras Veterinary College, Madras 7, TN, India) **Hydrocyanic acid poisoning in cattle.** *Indian Veterinary Journal*, v. 68(9): p. 887-888, 1991 (4 ref, Eng).

The cause of mortality of cattle in a village in Tiruchirapalli District of Tamilnadu was identified as hydrocyanic acid poisoning from dry Sorghum fodder. Two animals were treated with massive doses (100.15 gm) of sodium thiosulphate i.v. along with dextrose solution and were saved. This treatment is specific to hydrocyanic acid poisoning.

**9201-0150** Banerjee, S., Bandhyopadhyay, S.K. , Mukherjee, P.K., Mukherjee, A., Sikdar, S.(Calcutta National Medical College and University College of Medicine, Calcutta University, Calcutta 700 014, WB, India) **Further studies on the anti-inflammatory activities of Ricinus communis in albino rat.** *Indian Journal of Pharmacology*, v. 23(3): p. 149-152 , 1991 (10 ref, Eng).

Petroleum ether extract of *R.communis* exhibited significant antiinflammatory activity against induced rats paw arthritis. Drug was safe upto a dose of 1g/kg p.o. and at a dose 150 mg/kg p.o. exhibited no significant analgesic activity in rats. NSL, New Delhi.

**9201-0151** Benie, T., El Izzi, A., Tahiri, C. , Duval, J., Thieulant, M.L.*(Laboratoire d'Endocrinology Molecculaire, Centre National de la Recherche Scientifique, Unite de Recherche Associee 256, Campus de Beaulieu

35042 Rennes, France) **Combretum africanum bark extract as an antifertility agent. 1. Estrogenic effects in vivo and LH release by cultured gonadotrope cells.** *Journal of Ethnopharmacology*, v. 29(1): p. 13-23 , 1990 (8 ref, Eng).

Daily i.p. injections (50 mg/kg) of an aqueous extract of the stem bark of *C.africanum* promoted a significant increase in the uterine weight of 25 day-old female rats while pituitary weight remained unaffected. Similar injections for 21 days to mature females blocked the estrous cycle in the luteal phase and decreased plasma LH and FSH levels. In the cultured pituitary cells the extract amplified the gonadotropin release. [Combretum africanum] extracts seem to be different from classical estrogens. NML, New Delhi.

**9201-0152** Bhatia, G.S., Singh, R.K., Sethi, N.(Division of Toxicology, Central Drug Research Institute, Lucknow 226 001, India) **Subacute toxicity studies on Pan Masala (Zarda composition) in Charles Foster rats [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 206, 1991 (Eng).

Pan Masala (Zarda composition) when given orally to Charles Foster rats for 90 days at daily doses of 10,20 and 40 gms/kg body weight (human dose is 20 gms/kg body weight daily), significant changes were observed in treated rats as compared to controls. Body weight decreased in treated rats and it was dose dependent. High mortality was recorded. Decrease in haemoglobin and leucocytosis was evident. Biochemical parameters- SGPT and serum bilirubin- were effected, liver necrosis was noticed in treated rats.

**9201-0153** Bian, R.L., Xie, Q.M., Kobayashi, M., Asai, M., Ishiguro, T., Kishi, T.(Department of Antiasthmatic Drugs, Zhejiang Medical University, Central Research Division, Takada Chemical Industries Ltd; Japan) **Antianaphylactic components of Asarum forbsii Maxin.** *Acta Pharmaceutica Sinica*, v. 25(11): p. 824-829 , 1990 (6 ref, Chi, Eng).

From the ethyl acetate extract of *A.forbesii*, four new constituents, asarumin A(I), B(II), C(III) and D(IV), were isolated along with elemicin (V), trans-asarone(VI) and linoleic acid(VII). The structures of the new compounds were elucidated as methyl 3S-benzoyloxy-2S-hydroxy-2-isopropylbutyrate for I, methyl 2R-benzoyloxyisopentanoate for II, methyl 2 R-trans-cinnamoyloxyisopentanoate for III and methyl 2 R-piperonyloyloxyisopentanoate for IV. Compounds I, II, III and VII showed weak inhibition of passive cutaneous anaphylaxis in rats, but the other compounds were inactive.

**9201-0154** Bove, M.L.. **The Echinacea species: A research review.** *British Journal of Phytotherapy*, v. 1(1): p. 24-27 , 1990 (Eng).

An account of the chemistry and medicinal uses of *Echinacea* species has been given. *Echinacea* species have been used for many diseases and conditions as antiviral, antibiotic, antibacterial, antiinflammatory, immunostimulant and vulnerary. Its immunostimulant property could make it potentially useful in conditions such as allergies, cancers, chronic infections and even AIDS.

**9201-0155** Capasso, A., Pinto, A., Mascolo, N. , Autore, G., Capasso, F.*(Department of Experimental Pharmacology, University of Naples 'Federico II', via Domenico Montesano, 49, 80131 Naples, Italy) **Reduction of agonist-induced contractions of guinea-pig isolated ileum by flavonoids.** *Phytotherapy Research*, v. 5(2): p. 88-90, 1991 (19 ref, Eng).

The effect of 13 flavonoids on the contraction of guinea-pig isolated ileum induced by prostaglandin E2 (PGE2) and leukotriene D4 (LTD4) have been investigated. Apigenin, quercetin and kaempferol at a concentration of 10 microM significantly (p less than 0.001) reduced the contraction to either agonist. Crysin and flanvone antagonized only PGE2 (p less than 0.01). The other flavonoids were inactive. The blocking effect of apigenin, quercetin and kaempferol against PGE2 was also concentration- and time-dependent, and was augmented by the calcium channel blocker verapamil or by lowering the extracellular calcium to 25 percent, consistent with a calcium-mediated mechanism of protection which these flavonoids, at the same concentration,also showed against barium chloride (BaCl2)-or acetylcholine (ACh)-induced contraction (p less than 0.05-0.001).

**9201-0156** Chakrabarti, J.(Central Food Laboratory, 3 Kyd Street, Calcutta 700 016, WB, India) **Ester gum-cyto genetic end points for genotoxicity and clastogenicity [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi Nov.24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 121, 1991 (Eng).

Ester gum which is glycerolated rosin (abietic acid) has been preferred to brominated vegetable oil as weighting or clouding agent in soft drinks. Toxicity studies on ester gum have been done. Examination of sister chromotid exchange and chromosome aberration in male mice suggests

no relevant concern for ester gum at concentrations of 50,100 and 150 mg.

**9201-0157** Chauhan, B.M., Grewal, R.B.(Department of Food & Nutrition, Haryana Agricultural University, Hissar 125004, Haryana, India) **Effect of germination and indigenous fermentation of sprouts on the toxic constituents in soya bean [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 148-149, 1991 ( Eng).

Utilization of soya bean (*Glycine max*) for human consumption is hindered due to the presence of constituents like phytic acid, trypsin inhibitors, lectins, saponins, polyphenols etc. The effect of germination and fermentation of sprouts on the level of antinutrients in soya bean has been studied. Grains were soaked, germinated, autoclaved and made into slurry. The curd prepared from skim milk was mixed with the slurry and fermented. Germination and fermentation reduced the phytic acid, polyphenol and other constituents drastically. Sprouts and fermented products were found to be free from toxic factors and could be utilized in human nutrition.

**9201-0158** Claeson, P., Andersson, R. , Samuelsson, G(Department of Pharmacognosy, Biomedical Center, Uppsala University, Box 579, S-751 23 Uppsala, Sweden) **T-Cadinol: A pharmacologically active constituent of scented myrrh: Introductory pharmacological characterization and high field 1H- and 13C-NMR data.** *Planta Medica*, v. 57(4): p. 352-356, 1991 (24 ref, Eng).

Fractionation of an ethyl acetate extract of scented myrrh (resin of *Commiphora guidottii*, using the guinea pig ileum test to monitor pharmacological activity, resulted in isolation of the sesquiterpene (+)-T-cadinol. High field NMR spectroscopy yielded new detailed 1H- and 13C-NMR data for the compound. T-cadinol was shown to have a concentration-dependent smooth muscle relaxing effect on the isolated guinea pig ileum and a dose-dependent inhibitory effect on cholera toxin-induced intestinal hypersecretion in mice.

**9201-0159** Conde-Salazar, L., Guimaraens, D. , Gonzalez, M., Fuente, C.(Servicio Dermatologia Laboral, Institute Nacional de Medicina y Seguridad del Trabajo, Pabellon 8, Ciudad Universitaria, 28040 Madrid, Spain) **Occupational allergic contact dermatitis from opium alkaloids.** *Contact Dermatitis*, v. 25(3): p. 202-203, 1991 (3 ref, Eng).

Cases of two workers (37- and 40-year old males) working in a factory producing opium alkaloids from *Papaver somniferum* straw are described. The patients reacted positively (in the patch tests) to opium alkaloids viz., codeine phosphate, codeine hydrochlorides morphine hydrochloride, morphine bitartarate, carbon base totals, base totals and codeine bitartarate. These patients also gave positive results to para-group substances.

**9201-0160** Dagang, W., Sorg, B., Adolf, W. , Seip, E.H., Hecker, E.*(Kunming Institute of Botany, Chinese Academy of Science, Kunming, Yunnan, China) **Oligo- and macrocyclic diterpenes in Thymelaeaceae and Euphorbiaceae occurring and utilized in Yunnan (Southwest China) 1. Daphnane type diterpene esters from Daphne feddei.** *Phytotherapy Research*, v. 5(4): p. 163-168, 1991 (35 ref, Eng).

From roots of the Chinese folk medical plant *D.feddei* three *Daphne* factors, F1,F2 and F3 have been isolated. They proved identical with the known daphnane type 9,13,14-orthoesters huratoxin(F1), genkwadaphnin (F2) and with the known daphnane type 14-ester prohuratoxin (F3). From stem bark of the plant a new factorn F4 was obtained and identified as the 1,2-dihydro derivative of the known daphnane type 9,13,14-orthoester daphnetoxin. The factors F1-F4 exhibit moderate to strong irritant activity on the mouse ear. F4 assayed in the standard protocol 16 for tumor promoting activity on the back skin of mice was nearly inactive. Certain structure/activity relationships are pointed out along the conceptual idea to develop diterpene structures with diminished or abolished irritant and tumor promoting activities but retained immune stimulating, differentiating or otherwise antineoplastic activities.

**9201-0161** Dagar, H.S.(Botanical Survey of India, AAN Circle, Port Blair, 744102,Andaman & Nicobar Islands, India) **Plants used as abortifacient and contraceptive by the Nicobarese.** *Journal of the Andaman Science Association*, v. 5(2): p. 169-170, 1989 (Recd. 1991, 10 ref, Eng).

*Allophyllus cobbe, Clerodendrum paniculatum, Cynthostemma viridiflorum, Euphorbia longum, Ganophyllum falcatum, Lepisanthes rubiginosa, Sarcostigma wallichii, Stenochlaena palustris, Terminalia catappa* are the plant species that have been recommended for women to have an abortion. NSL, New Delhi.

**9201-0162** De Almeida, E.R., Da Silva Filho, A.A. , Dos Santos, E.R., Correia Lopes, C.A.(Departamento de Antibioticos, Universidade Federal de Pernambuco, Recife, Pernambuco CEP, 50739, Brazil) **Antiinflammatory action of lapachol.** *Journal of Ethnopharmacology*, v. 29(2): p. 239-241 , 1990 (7 ref, Eng).

Lapachol, 2-hydroxy-3-(3-methyl-2-butenyl)-1,4-naphtoquinone, isolated from some species of Begoniaceae

exhibited significant antiinflammatory activity in carrageenan induced edema in rats. NML, New Delhi.

**9201-0163** De Carvalho, J.E,, Lapa, A.J.(Department of Pharmacology, Natural Products Section, CP 20372, Escola Paulista de Medicina, 04044 Rua Tres de Maio 100, Sao Paulo, SP, Brazil) **Pharmacology of an Indian-snaff obtained from Amazonian Maquira sclerophylla.** *Journal of Ethnopharmacology*, v. 30(1): p. 43-54 , 1990 (29 ref, Eng).

Both the crude and the purified hydrosoluble extract (WP) of bark of *M.sclerophylla*, injected i.p. in the dose range of 0.05-0.5g/kg induced hyperexcitability, tremors, motor incoordination, ataxia, quiteness and muscle relaxation in rats. The effects were progressive, dose related and reversed after 30 min. Anaesthetized rats, guinea-pigs and dogs injected with purified extract (10-50mg/kg,i.v.) showed a biphasic change of carotid blood pressure. The early and transient hypotension was blocked by atropine but not by vagotomy. The secondary hypertension was long lasting and sustained for over 30 min. These cardiovascular effects resemble those of digitalis-like drugs. Cardenolides were detected in WP by phytochemical screening. NML, New Delhi.

**9201-0164** De, A.K., Ghosh, J.J.*(Department of Biochemistry, University College of Science, 35 Ballygunge Circular Road, Calcutta 700 019, WB, India) **Effects of short-term capsaicin treatment on formalin and nitrogen dioxide induced changes in lipid peroxidation and antioxidant enzyme system in rat lung.** *Phytotherapy Research*, v. 5(2): p. 88-90, 1991 (19 ref, Eng).

Exposure of rats to formalin and nitrogen dioxide vapour caused a significant increase in values of the lung wet wt/dry wt ratio (oedema formation) and lipid peroxidation. These effects were not observed in rats treated with short-term capsaicin from *Capsicum frutescens*, either before or after exposure to the two gases. This protective action of short-term capsaicin treatment can possibly be linked with the strengthening of the pulmonary antioxidant enzyme defence system by capsaicin.

**9201-0165** Deng, H.L., Yu, Y.W., Wu, D.F. , Yi, M.G.*(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **The subcellular distribution and covalent binding of 3H-(+) and 3H-(-) gossypol in the main tissues of rats.** *Acta Pharmaceutica Sinica*, v. 24(7): p. 490-495, 1989 (13 ref, Eng, Chi).

The total and covalently bound radioactivity in various subcellular components in the main tissues of rats was measured 7 and 18 days after a single intraperitoneal and intratesticular injection of 3H-(+) and 3H-(-) gossypol. An increasing tendency of covalently bound radioactivity with time in the myocardial mitochondria and testicular cell membrane and microsomes of rats treated with (+) or (-) gossypol was found, especially in (-) gossypol treated rats. It remains to be clarified whether these are linked to the myocardial toxicity and to the antispermatogenic activity of gossypol.

**9201-0166** Dong, X.Y., Chen, M., Jin, W. , Huang, D.X., Shen, S.M., Li, H.T.(Shanghai Institue of Pharmaceutical Industry, Shanghai 200 040, China) **Studies on antifertility constituents of Siegesbeckia glabrescens Mak.** *Acta Pharmaceutica Sinica*, v. 24(11): p. 833-836 , 1989 (8 ref, Chi, Eng).

Three diterpenes including a new compound were isolated from the whole plant of *S.glabrescens*. The new one was named as neodarutoside and its structure was elucidated as ent-3alpha,15,16-trihydroxy pimarane .3,15-bis-(beta-glucopyranoside) based on the spectral evidence and chemical transformation. The other two were darutigenol and darutoside. Darutoside possesses the activity of termination of early pregnancy in experimental rats at a dosage of 20 to 40 mg/kg.

**9201-0167** Dooms-Goossens, A., Deleu, H.(Department of Dermatology, Katholieke Universiteit Leuven, Kapucijnenvoer 33, B-3000 Leuven, Belgium) **Airborne contact dermatitis: an update.** *Contact Dermatitis*, v. 25(4): p. 211-217, 1991 (142 ref, Eng).

The review covers the 12 volumes of Contact Dermatitis (July 1985-April 1991) and the cases described have been classified as to history, lesion locations, causative agents, and other factors. The number of reports of airborne dermatoses has increased considerably in recent years.

**9201-0168** Ebihara, T., Kawai, T., Kuroyanagi, M.*, Fukushima, S., Ueno, A.(School of Pharmaceutical Sciences, University of Shizuoka 395 Yada, Shizuoka-shi, 422, Japan) **Studies on the anticomplementary activity of Jozann. Anticomplementary activity of steroid derivatives.** *Yakugaku Zasshi*, v. 111(6): p. 299-305, 1991 (8 ref, Jap, Eng).

Of 53 crude drugs tested for the anticomplementary activity, 12 samples showed the potent activity. Of these 12 samples, the active constituents, 3beta-hydroxystigmast-5-en-7-one was isolated from the extract of Jozann (Dichrome Radix) and its structure was confirmed by deriving this compound from beta-sitosterol. The activity of steroid derivatives as stigmastane, cholestane, androstane and pregnane type steroids were further studied. Of these, several

kinds of steroids showed the potent activity. The structure and activity relationship has been discussed.

**9201-0169** Fang, H.J., Su, X.L.; Chen, Y.H. , Ni, J.H.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Studies on the chemical components and antitumour action of the volatile oils from Pelargonium graveolens.** *Acta Pharmaceutica Sinica*, v. 24(5): p. 366-371, 1989 (14 ref, Chi, Eng).

Three geranium (*P.graveolens*) oils were separated, identified and compared by high resolution cross-linked fused silica capillary GC and GC-MSD. It was found that their chemical constituents are very similar, but the contents of some components (linalool, citronellol, cis-caryophyllene and guaiene) differ appreciably. Pharmacological experiments showed that citronellol, citronellyl formate, geraniol and citronellyl acetate exhibited marginal antitumour activities.

**9201-0170** Fang, X.P., Anderson, J.E., Chang, C.J., McLaughlin, J.L.*(Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana 47907, USA) **Two new styryl lactones, 9-deoxygoniopypyrone and 7-epi-goniofufurone, from Goniothalamus giganteus.** *Journal of Natural Products*, v. 54(4): p. 1034-1043 , 1991 (14 ref, Eng).

Two new styryl lactones, 9-deoxygoniopypyrone {1} and 7-epi-goniofufurone {3}, and a known styryl lactone, goniodiol {5}, were isolated from the stem bark of *G.giganteus* and their structures were elucidated. The relative configurations were determined by X-ray crystallographic analysis. Unlike goniopypyrone and goniofufurone, neither of the new styryl lactones I and 3 showed significant bioactivities to human tumor cells. However, goniodiol showd significant and selective cytotoxicity against human lung tumor cells (A-549).

**9201-0171** Fernando, M.R., Thabrew, M.I. , Karunanayake, E.H. (Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka) **Oral hypoglycaemic activity of the stem bark of Ficus benghalensis.** *Ceylon Journal of Medical Science*, v. 30(2): p. 73-81 , 1987 (Recd. 1991, 6 ref, Eng).

Stem bark of *F.benghalensis* has been found to significantly lower the fasting blood glucose level and markedly improve glucose tolerance in rats. The hypoglycaemic effect produced by a therapeutic dose (20 g/kg body weight) of the plant extract (49 mg/dl or 52 percent decrease in fasting blood glucose level in 3 hrs) was in fact better than that produced by a therapeutic dose (15mg/kg body weight) of tolbutamide (34 mg/dl or 36 percent decrease in fasting blood glucose level in 3 hrs). The magnitude of the hypoglycaemic effect was found to vary with the dosage administered and the storage time of the prepared extract. The maximum hypoglycaemic effect was observed with a dose of 40 g/kg body weight of the plant extract.

**9201-0172** Gandhi, M., Vinayak, V.K.*(Department of Experimental Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh 160012, India) **Preliminary evaluation of extracts of Alstonia scholaris bark for in vivo antimalarial activity in mice.** *Journal of Ethnopharmacology*, v. 29(1): p. 51-57 , 1990 (24 ref, Eng).

The petroleum ether and methanol extracts of the bark of *A. scholaris* were found to be devoid of antimalarial activity in mice infected with *Plasmodium berghei*. However, a dose-dependent improvement of conditions, and delayed mortality amongst animals receiving methanol extract was noticed. NML, New Delhi.

**9201-0173** Gandhi, R.K., Khandufer, K.L.(Department of Biophysics, Postgraduate Institute of Medical Education and Research, Chandigarh 160012, India) **Impact of quercetin consumption on phase I and phase II drug metabolizing enzymes in mice [Abstract of the paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, 24-28 Nov. 1991.** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 190, 1991 (Eng).

In order to study the dietary modulatin to effect the reduction of chemical carcinogensis risk, Swiss mice were fed with quercetin (0,1,3 and 9 kg/ml) through drinking water. The results indicate an increase in hepatic and pulmonary activities which is quercetin dose dependent. The increase in lung and liver activities may be either due to detoxification of the chemicals or by controlling the free radical mediated bioreactions.

**9201-0174** Ganu, U.K., Khandelkar, D.D. , Gokhale, S.V.(Bio-Organic Unit, Cancer Research Institute, Tata Memorial Centre, Parel, Bombay 400 012, Maharashtra, India) **Potential of anticancer activity by extracts of Streblus asper against P388 murine leukemia.** *Indian Drugs*, v. 28(11): p. 504-506, 1991 (9 ref, Eng).

Methanolic extract of different parts of the plant did not show any antitumour activity. The leaf and flower extracts, when used in combination with cyclophosphamide potentiated the activity of the drug significantly. A partially purified fraction of the leaves showed a further enhancement of the effect.

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**9201-0175** Ghosal, S. , Lal, J., Singh, S.K. , Goel, R.K., Jaiswal, A.K., Bhattacharya, S.K.(Department of Pharmacology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, UP, India) **The need for formulation of Shilajit by its isolated active constituents.** *Phytotherapy Research*, v. 5(5): p. 211-216, 1991 (23 ref, Eng).

The effects of Shilajit, collected from India, Nepal, Pakistan and Soviet Russia, and the effects of organic constituents isolated from a potent Shilajit sample, were studied in a number of antistress and CNS activity paradigms. Shilajit from Kumaon (India), Dolpa (Nepal), and a combination (1:1) of the total ethylacetate extracts (TE) and fulvic acids (FAs), from Kumaon Shilajit, produced statistically significant effects in forced swimming-induced immobility in albino mice; restraint stress and aspirin-induced gastric ulcers in pylorus ligated albino rats; and augmented the learning acquisition and memory retention in old rats. The potential risk of ingesting Shilajit, in the native form as a 'health product', was appraised in view of its high stable free radical content and possible contamination with mycotoxin-producing fungi. Hence, there is an imperative need for formulation of Shilajit on the basis of its isolated active constituents (TE and FAs). Additionally, the physical and spectral characteristics of active FAs (bioactivity-directed) were determined and compared with those of less active and inactive samples. These would provide predictability for selection of FAs for formulation of Shilajit.

**9201-0176** Ghosh, D., Uma, R., Thejomoorthy, P., Veluchamy, G. (Central Research Institute (Siddha), Arumbakkam, Madras 600 106, TN, India) **Hypoglycaemic and toxicity studies of Triphala-a Siddha drug.** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 78-89, 1990 (24 ref, Eng).

Triphala showed significant hypoglycaemic activity in fasting rabbits only in the dose of 90 mg/kg orally. The drug was found to be non-toxic even when administered in high dose.

**9201-0177** Goel, A., Dhawan, D.K., Gautam, C.S.(Department of Pharmacology, PGIMER, Chandigarh 160 012, India) **Influence of Liv.52 on carbon tetrachloride induced hepatotoxicity: A biochemical study.** *Indian Journal of Pharmacology*, v. 23(3): p. 182-184 , 1991 (6 ref, Eng).

Three groups of rats, 10 rats each were subjected to experimentalstudy. Animals in group 2 and 3 were injected S.c. with 0.2 mlCCl4 mixed in 0.2 ml of groundnut oil twice a week for 6 weeks.Animals in group 3 also received 0.5 ml of Liv 52 syrup every day in addition to CCl4. Group 1 animals were injected only with 0.2 ml of groundnut oil twice a week. Serum acid, alkaline phosphatase, AST and ALT activities were increased in CCl4 treated rats. Pretreatment with Liv 52 prevented the rise in the enzyme levels. NSL, New Delhi.

**9201-0178** Graydon, R.J., Hamid, H., Zahari, P., Gardiner, C.(Sea Crest, 17 Esplanade, Wellington Point, Queensland 4160, Australia) **Photosensitization and crystal-associated cholangiohepatopathy in sheep grazing Brachiaria decumbens.** *Australian Veterinary Journal*, v. 68(7): p. 234-236 , 1991 (14 ref, Eng).

Two outbreaks of photosensitivity and jaundice in sheep grazing the grass, *B.decumbens*, in West Java in 1983 and 1990 are described. Aggregates of acicular clefts and crystals were present in bile canaliculi, bile ducts, Kupffer cells, hepatocytes and in kidney tubules. The number of crystals increased with the length of exposure to the plant and sheep that died had the greater accumalations. These crystalline structures are similar to those seen in *Tribulus terrestris* and *Panicum* spp. toxicities.

**9201-0179** Grippo, A.A., Wyrick, S.D., Lee, K.H., Shrewsbury, R.P., Hall, I.H.*(Division of Medicinal Chemistry and Natural Products, School of Pharmacy, University of North Carolina, Chapel Hill, NC 27599-7360, USA) **Disposition of an antineoplastic sesquiterpene lactone, {3H}-plenolin, in BDF1 mice.** *Planta Medica*, v. 57(4): p. 309-314, 1991 (29 ref, Eng).

The pharmacokinetics of a radiolabelled analog of helenalin, isolated from *Helenium microcephalum*, [3H]-plenolin ({3H}-11,13-dihydrohelenalin), was determined in BDF1 mice. A two-compartment pharmacokinetic model predicted that the maximum terminal (beta) half-life of {3H}-plenolin was 57.3 hours. Urinary excretion accounted for 40.3 percent to 64.4 percent of the administered radioactivity, while fecal excretion accounted for 9.3 percent to 39.7 percent. Following intraperitoneal administration of [3H]-plenolin, no radioactivity was sequestered in the major organs. However, radioactivity was sustained in the carcass and skin for 24 days. [3H]-Plenolin was rapidly taken up by murine tumor cells and human fibroblasts. The drug did not significantly associate with DNA, RNA, or protein of P388 leukemia or human fibroblast cells.

**9201-0180** Hagino, K., Oshige, H., Ozawa, K. , Kudo, K., Koide, M., Sugita, R. , Adachi, K., Koike, H.(Product Development Laboratories, Pharmaceutical Products Division, Lion Corporation, 100 Tajima, Odawara-shi, Kanagawa 256, Japan) **Effect of XKJ-001, a crude drug preparation, on body water distribution and water excretion in mice.** *Yakugaku Zasshi*, v. 111(6): p. 293-298, 1991 (14 ref, Jap, Eng).

Effect of XKJ-001, a crude drug preparation based on Seisho-ekki-to, on the hematocrit, plasma volume, extracellular and interstitial fluid volumes as well as water excretion in mice has been reported. Administration of XKJ-001 (3g/kg, once a day) for 5 d, inhibited the increase in hematocrit and the changes in body water distribution of mice induced by high environmental temperature. Effect of XKJ-001 on water excretion in mice has been reported in comparison with hydrochlorothiazide (HTZ). Distilled water (D.W., 100 ml/kg) or bicarbonate saline (B.S., 100 ml/kg) was intraperitoneally injected immediately after the oral administration of XKJ-001 (1.5 g/kg) or HTZ (15 mg/kg). The water excretion was enhanced after 3 h for XKJ-001 and after 6 h for HTZ after the intraperitoneal injection of D.W. As for the intraperitoneal injection of BS, HTZ enhanced the water excretion, however, XKJ-001 exhibited no effect.

**9201-0181** Hano, Y., Mitsui, P., Nomura, T. , Kawai, T., Yoshida, Y.(Faculty of Pharmaceutical Sciences, Toho University, Miyama, Funabashi, Chiba 274, Japan) **Two new dihydrochalcone derivatives, antiarones J and K, from the root bark of Antiaris toxicaria.** *Journal of Natural Products*, v. 54(4): p. 1049-1055 , 1991 (12 ref, Eng).

Two new dihydrochalcone derivatives, antiarones J and K, were isolated from the MeOH extract of the root bark of *A.taxicaria*. The structure of antiarone J was identified on the basis of spectroscopic data, and the structure of antiarone K was determined on the basis of X-ray crystallographic analysis and spectroscopic data. Antiarones J and K are regarded as chalcone derivatives having an isoprenoid moiety at the C-2 position.

**9201-0182** Hausen, B.M., Bruhn, G., Koenig, W.A.(Department of Dermatology, University Hospital, Martinstr. 52, D 2000 Hamburg 20, FRG) **New hydroxyisoflavans as contact sensitizers in cocus wood Brya ebenus DC (Fabaceae).** *Contact Dermatitis*, v. 25(3): p. 149-155, 1991 (16 ref, Eng).

A 15 year-old girl developed perioral dermatitis and swelling of the lips, having played a flute made of cocus wood for 2 years. Patch tests with wood shavings, as well as with subsequently isolated constituents named cocus I and cocus II, were strongly positive, cocus I was identified as 7,8-dihydroxy-2',4',5'-trimethoxyisoflavan. Structure of cocus II could not be elucidated exactly, it could have been either 7,8,3'-trihydroxy-2',4'-dimethoxyisoflavan or 7,8,2'-trihydroxy-3',4'-dimethoxyisoflavan. Due to the stronger patch test reaction and the higher yield of cocus I in the wood, this hydroxyisoflavan must be recognized as the main contact allergen.

**9201-0183** Hiermann, A., Reidlinger, M., Juan, H., Sametz, W. (Institut fur Experimentelle und Klinische Pharmakologie, Universitat Graz, Universitatsplatz 4, A-8010 Graz, Austria) **Isolation of the antiphlogistic principle from Epilobium angustifolium.** *Planta Medica*, v. 57(4): p. 357-360, 1991 (17 ref, Eng, Ger).

From the leaves of *E.angustifolium*, an antiphlogistic principle was isolated and identified as myricetin 3-O-beta-D-glucuronide. This novel flavonoid exhibited a very strong antiinflammatory effect on carrageenan-induced edema in the rat hind paw (more than ten times more effective than indomethacin) and an inhibitory effect on prostaglandin biosynthesis (as effective as indomethacin).

**9201-0184** Hirano, T., Wakasugi, A., Oohara, M., Oka, K., Sashida, Y.(Division of Clinical Pharmacology, Tokyo College of Pharmacy, 1432-1 Horinouchi, Hachioji, Tokyo 192-03, Japan) **Suppression of mitogen-induced proliferation of human peripheral blood lymphocytes by plant lignans.** *Planta Medica*, v. 57(4): p. 331-334, 1991 (18 ref, Eng).

The effects of seven lignans and two neolignans derived from plants and herbs on the concanavalin A-induced proliferation of human peripheral blood lymphocytes in vitro were studied. All compounds showed inhibitory activity with an IC50, ranging from 0.02 to 4.30 microg/ml. Machilin A (2,3-dimethyl-1,4-dipiperonylbutane), a Lauraceae lignan, was the strongest inhibitor and was quite effetive as the synthetic immunosuppressive glucocorticoid prednisolone. The viability of lymphocytes before and after treatment, indicated no change, and thus the lignans are not lymphocytotoxic but may inhibit DNA synthesis. The results suggest the value of further assessment of plant lignans as immunosuppressive agents.

**9201-0185** Huralikuppi, J.C., Christopher, A.B. , Stephen, P.M.* (Department of Pharmacology and Clinical Pharmacology, Christian Medical College, Vellore 632002, TN, India) **Anti-diabetic effect of Nelumbo nucifera (Gaertn): Part I. Preliminary studies in rabbits.** *Phytotherapy Research*, v. 5(2): p. 54-58, 1991 (18 ref, Eng).

The powdered *Nelumbo nucifera* sun-dried flowers (test drug), as well as the aqueous and alcoholic extract of these, produced significant hypoglycaemia in fasting normal albino rabbits. There was no significant difference in the activities of 1000 mg/kg of the test drug and equivalent amounts of the extracts; the effect was approximately 50 percent of that produced by 250 mg/kg of tolbutamide. Glucose tolerance studies with normal rabbits showed that oral doses of both extracts, equivalent to 1000 mg/kg of the test drug, produced significant depression of the peak rise

in fasting blood sugar after glucose load; the effects of both extracts were comparable to that produced by 250 mg/kg of tolbutamide. A study of glucose tolerance curves shows that the duration of hyperglycaemia was also notably reduced compared with the controls. In normal rabbits, the extracts, in doses mentioned above, significantly depressed hyperglycaemia induced by injection of adrenaline hydrochloride p.5 mg/kg s.c. The test drug and extracts were found to be effective in studies of the above parameters in normal animals.

**9201-0186** Huralikuppi, J.C., Christopher, A.B. , Stephen, P.M.* (Department of Pharmacology and Clinical Pharmacology, Christian Medical College, Vellore 632 002, TN, India) **Antidiabetic effect of Nelumbo nucifera (Gaertn) extract: Part II.** *Phytotherapy Research*, v. 5(5): p. 217-223, 1991 (8 ref, Eng).

Chronic administration of plant extracts (test drugs) *N. nucifera* to normal rats did not produce a sustained fall of fasting blood sugar levels although daily doses caused hypoglycaemia as an acute effect; concurrent glucose tolerance studies showed beneficial effects. In vitro studies with rat hemidiaphragms revealed that test drug treatment of donor animals significantly enhanced the effect of insulin. The improvement of glucose tolerance therefore may also be due to increased peripheral glucose utilzation caused by increased sensitivity of skeletal muscles to endogenous insulin. Comparative studies were also carried out in moderately diabetic rabbits using test drugs (equivalent to 1000 mg/kg of crude material) and standard drugs phenformin and tolbutamide (100 mg/kg each). The test drugs showed acute and chronic effects in suppressing hyperglycaemia, but were less potent than standard drugs. However, test drugs significantly improved glucose tolerance in these animals. With severely diabetic rabbits, these drugs proved to be ineffective even at four-fold higher doses. Toxicity studies in normal rats did not show any deleterious effect on kidney, heart or liver during an 8-week study period.

**9201-0187** Ingber, A.(Department of Dermatology, Beilinson Medical Center, Petach Tikva 49100, and Sackler School of Medicine, Tel Aviv University, Israel) **Primula photodermatitis in Israel.** *Contact Dermatitis*, v 25(4): p. 265-266, 1991 (2 ref, Eng).

Case of a 49-year-old woman exhibiting symptoms of allergic contact dermatitis from *P.obconica* is described.

**9201-0188** Itoigawa, M., Takeya, K., Furukawa, H.(Department of Pharmacology, Aichi Medical University, Karimata-21, Yazako, Nagakute, Aichi-ken 480-11, Japan) **Cardiotonic action of plumbagin on guinea-pig papillary muscle.** *Planta Medica*, v. 57(4): p. 317-319, 1991 (5 ref, Eng).

Plumbagin, an active principle from Plumbaginaceous plants, produced a triphasic inotropic response in guinea-pig papillary muscle. The inotropic potency of plumbagin at the first positive phase was pD2 6.40, and the methylation of 5-hydroxy group of plumbagin reduced the potency. The triphasic pattern of inotropism of plumbagin was unaffected by reserpine or propranolol treatments. Plumbgin did not produce the positive inotropic effects under anoxic conditions or in the presence of mitochondrial oxidative phosphorylation inhibitors such as 2,4-dinitrophenol and dicumarol.

**9201-0189** Jacyno, J.M., Montemurro, N., Bates, A.D., Culter, H.G. (Richard B. Russell Center, Agricultural Research Service, U.S. Department of Agriculture, P.O. Box 5677, Athens, Georgia 30613, USA) **Phytotoxic and antimicrobial properties of cyclocolorenone from Magnolia grandiflora L.**. *Journal of Agricultural and Food Chemistry*, v. 39(4): p. 1166-1168, 1991 (23 ref, Eng).

Cyclocolorenone, a sesquiterpene ketone of the aromadendrane class, was isolated from *M.grandiflora* by bioassay-directed fractionation and its identity confirmed by UV, IR, NMR, and MS techniques. It showed good growth-inhibitory activity in an etiolated wheat coleoptile assay. Cyclocolorenone was also phytotoxic to greenhouse-grown corn, bean, and tobacco plants and displayed antimicrobial activity.

**9201-0190** Jangle, S.N., Navthar, M.S.(Department of Biochemistry, Rural Medical College, Loni 413 713, Taluka Shrirampur, District Ahmednagar, Maharashtra, India) **Momordica charantia: Plant having hypoglycaemic action.** *Deerghayu International*, v. 5(20): p. 6-8, 1989 (Recd. 1991, 21 ref, Eng).

Work carried out on the antidiabetic activity of *M.charantia* has been reviewed.

**0800-0191** Janssen, J., Lackeman, G.M.* , Pieters, L.A.C., Totte, J., Herman, A.G. , Vlietinck, A.J.(Department of Pharmaceutical Sciences, University of Antwesp(UIA), B-2610 Wilrijk, Belgium) **Nutmeg oil: Identification and quantitation of its most active constituents as inhibitors of platelet aggregation.** *Journal of Ethnopharmacology*, v. 29(2): 179-188, 1990 (22 ref, Eng).

Three distilled or commercially available *Myristica fragarns* oils were analyzed and their chemical composition compared with their capacity to inhibit platelet aggregation in vitro. It could be clearly shown that eugenol and isoeugenol play the major role in the detected activity of nutmeg. NML, New Delhi.

**9201-0192** Jayatilaka, K.A.P.W., Thabrew, M.I.* , Perera. D.J.B. (Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka) **Effect of Melothria maderaspatana on carbon tetrachloride-induced changes in rat hepatic microsomal drug-metabolizing enzyme activity.** *Journal of Ethnopharmacology*, v. 30(1): p. 97-105 , 1990 (19 ref, Eng).

Treatment with an aqueous extract of the aerial parts of *M.maderaspatna*, before or after carbon tetrachloride administration in rats markedly decreased CCl4 mediated reductions in aniline hydroxylase and p-aminopyrine N-demethylase activities. Phenobarbital-induced sleeping time in rats and kinetic enzyme studies showed that the effect of the plant was neither due to an induction of the drug metabolizing enzymes nor due to an alteration in the Km values of the enzymes. NML, New Delhi.

**9201-0193** John, T.A., Onabanjo, A.O.*(Department of Pharmacology, Chemotherapy Unit, College of Medicine, University of Lagos, Lagos, Nigeria) **Gastroprotective effects of an aqueous extract of Entandrophragma utile bark in experimental ethanol-induced peptic ulceration in mice and rats.** *Journal of Ethnopharmacology*, v. 29(1): p. 87-93 , 1990 (8 ref, Eng).

A therapeutic dose equivalent to 50 g/kg of bark orally caused total protection without lethality in the animals employed. The formation of a protective pellicle over the epithelial lining was observed, which may be due to the presence of tannins in the herbal medicine and this may prevent the absorption of noxious agents. The maximum dosage administered was equivalent to 500 g/kg of the bark and produced 25 percent lethality. NML, New Delhi.

**9201-0194** Jossang, A., Dubaele, B., Cave, A. , Bartoli, M.H., Beriel, H.(Laboratoire de Chimie, URA 401 du CNRS, Museum National d'Histoire Naturelle, 63 rue Buffon, 75231 Paris Cedex 05, France) **Annomontacin: A novel cytotoxic monotetrahydrofuran gamma-lactone, acetogenin, from Annona montana.** *Journal of Natural Products*, v. 54(4): p. 967-971 , 1991 (16 ref, Fre, Eng).

The structure of annomontacin, a novel monotetrahydrofuran fatty acid gamma-lactone (acetogenin) isolated from the seeds of *A.montana*, was determined by spectral analysis. The cytotoxicities in vitro of annomontacin, annonacinone, and annonacin were measured against murine leukemia L1210, human breast adenocarcinoma MDA-MB231, and human breast carcinoma MCF7 cell lines and compared with adriamycin.

**9201-0195** Ju, H.S., Li, X.J., Zhao, B.L. , Han, Z.W., Xin, W.J. (Institute of Biophysics, Academia Sinica, Beijing 100 080, China) **Effects of Glycyrrhiza flavonoid on lipid peroxidation and active oxygen radicals.** *Acta Pharmaceutica Sinica*, v. 24(11): p. 813-816 , 1989 (18 ref, Chi, Eng).

The scavenging effects of flavonoids of *Glycyrrhiza*(FG) on O2 and OH was investigated by using chemiluminescence method and spin trapping technique in different systems. The results were as follows: FG 2.8 to 25 microg/ml effectively inhibited MDA formation induced by incubating mice liver homogenate at 37 degree C for 1 h; FG 0.265 to 26.5 microg/ml or 2.58 to 258 microg/ml was shown to markedly scavenge O2 in alkaline/DMSO or xanthine/xanthine oxidase systems, respectively in a concentration-dependent manner. FG 144 microg/ml or 258 microg/ml also significantly scavenged the active oxygen radicals produced by PMN stimulation with PMA or OH produced in Fenton's reaction respectively. The results suggest that FG may be used as an antioxidant.

**9201-0196** Karnick, C.R., Kulkarni, M.(Research Scientist, Wockhardt Limited, Ayurvedic Clinical Division, Aurangabad, Maharashtra, India) **Immunization against bacterial and viral infections using Ayurvedic herbal medicines-a clinical trial.** *Maharashtra Medical Journal*, v. 37(7-8): p. 115-122 , 1990 (Recd. 1991, 21 ref, Eng).

*Astragalus membranaceus, Allium sativum, Andrographis paniculata, Iphigenia indica, Curcuma aromatica, Indigofera tinctoria, Azadirachta indica, Cynodon dactylon, Swertia chirata, Ocimium sanctum, Eclipta alba, Wedelia calendulacea, Boerahaavia diffusa, Phyllanthus nirui* were tested for immunostimuletory activity. Hot water extract was taken out of individual drug plant and mixed with equal portion of a sugar syrup. Syrup was tested in 30 rats for LD50. Noné of the drugs were toxic and they were 100 percent safe. These drugs appear to rèduce mortality rates of children suffering from gastroenteritis, pyogenic meningitis, bronchial pneumonia etc. NSL, New Delhi . @A = etc%etc. NSL, New Delhi.

**9201-0197** Kimura, M., Kimura, I., Luo, B. , Kobayashi, S. (Department of Chemical Pharmacology, Faculty of Pharmaceutical Sciences, Toyama Medical and Pharmaceutical University, Toyama 930 01, Japan) **Antiinflammatory effect of Japanese-Sino medicine 'Keishi-ka-jutsubu-to' and its component drugs on adjuvant air pouch granuloma of mice.** *Phytotherapy Research*, v. 5(5): p. 195-200, 1991 (9 ref, Eng).

A Japanese-Sino medicine, Keishi-ka-jutsubu-to (KJ), consisting of seven crude drugs, aconite, *Atractylodes lancea*, peony, liquorice, ginger, *Cassia* and jujube, has long been used clinically to cure chronic inflammatory diseases such as rheumatoid arthritis. The antiinflammatory effect induced by KJ and the main roles of the component crude

drugs in KJ were investigated on adjuvant-induced air pouch granuloma in mice. KJ (water-soluble extract at 50 degree C) was effective in inhibiting the chronic inflammatory process of angiogenesis, whereas KJ (extract at 100 degree C without a water-cooler) was effective for the acute inflammatory processes of inflammatory cell migration and pouch fluid exudation. Keishi-to (KJ minus aconite and *A.lancea* and a combination of both aconite and *A.lancea* provided additive inhibition of angiogenesis when used in combination. The effects on angiogenesis of peony, ginger or *Cassia* alone were potentiated, and those of aconite, *Atractylodes lancea* or liquorice alone were additive in KJ. Pharmacological analysis of these experimental chronic inflammatory processes demonstrated the role of each drug in the combined effect of KJ.

**9201-0198** Konoshima, T., Kozuka, M., Tokuda, H., Nishino, H., Iwashima, A., Haruna, M. , Ito, K., Tanabe, M.(Kyoto Pharmaceutical University, Misasagi, Yamashina-ku, Kyoto 607, Japan) **Studies on inhibitors of skin tumor promotion, IX. Neolignans from Magnolia officinalis.** *Journal of Natural Products*, v. 54(3): p. 816-822 , 1991 (18 ref, Eng).

Three neolignans, known as magnolol (1), honokiol (2), and the new monoterpenylmagnolol (3), were isolated from the bark of *Magnolia officinalis* as inhibitors of Epstein-Barr virus early antigen activation induced by 12-O-tetradecanoylphorbol-13-acetate. The structure of 3 was determined from 2D NMR spectral data and difference nOe experiments. The MeOH extract of this plant and magnolol exhibited remarkable inhibitory effects on mouse skin tumor promotion in an in vivo two stage carcinogenesis test. This investigation indicates that these neolignans and the extract might be valuable antitumor promoters.

**9201-0199** Kulkarni, R.D.(MGM's Medical College, Kalamboli, New Bombay 410209, Maharashtra, India) **Concept of safety and toxicity of drug in Ayurveda [No. S-22.1. Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, 24-28 Nov. 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 128, 1991 (Eng).

Ayurvedic medicines, are potent medicines but sometimes they prove toxic. However, there are specific guidelines on the processing of medicines in order to increase the potency and decrease the toxicity. The importance of processing and appropriate dose has been stressed. The common misconception that Ayurvedic drugs are not toxic has arisen from the use of unprocessed traditional or herbal remedies which lack biological action. The common traditional remedies may be ineffective yet toxic due to contamination or adulterations.

**9201-0200** Kumar, N.G., Nair, A.M.C. , Raghunandanan, V.R., Rajagopalan, M.K.(Department of Pharmacology & Toxicology, College of Veterinary and Animal Sciences, Mannuthy, Trichur, Kerala, India) **Hypoglycaemic effect of Phyllanthus niruri leaves in rabbits.** *Kerala Journal of Veterinary Science*, v. 20(1): p.77-80 , 1989 ((Recd. 1991), 4 ref, Eng).

Alcoholic extract of *P.niruri* leaves at an oral dose of 250 mg/kg produced a significant decrease in the blood glucose level of alloxan induced diabetic rabbits. NSL, New Delhi.

**9201-0201** Kuttan, G., Vasudevan, D.M., Kuttan, R.*(Amala Cancer Research Centre, Amala Nagar, Trichur 680553, Kerala,India) **Effect of a preparation from Viscum album on tumor development in vitro and in mice.** *Journal of Ethnopharmacology*, v. 29(1): p. 35-41 , 1990 (13 ref, Eng).

Iscador (a commercial preparation made from [Viscum album] was found to be cytotoxic to animal tumor cells such as Dalton's lymphoma ascites cells (DLA cells) and Ehrlich ascites cells in vitro and inhibited the growth of lung fibroblasts, Chinese hamster ovary cells and KB cells at very low concentrations. Iscador was found to reduce ascites tumours and solid tumours produced by DLA cells and Ehrlich ascites cells. The effect of the drug could be seen when the drug was given simultaneously, after tumour development or when given prophylactically, indicating a mechanism of action very different from other chemotherapeutic drugs. Iscador was not found to be cytotoxic to lymphocytes. NML, New Delhi.

**9201-0202** Lahiri, V., Singh, K., Elhence, B. , Abha Rani, Wahal, P.K., Sandhu, J. , Qureshi, S.(Postgraduate Department of Medicine, S N Medical College, Agra 282 002, UP, India) **Tobacco related cardiovascular disease: Role of sensitivity to tobacco glycoprotein - An experimental study [Abstract of paperpresented at the 2nd Congress of Toxicology in DevelopingCountries held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 208, 1991 (Eng).

Expertment were conducted to find if sensitization to tobacco glycoprotein caused cardiovascular injury. It was observed that animals receiving tobacco glycoprotein showed mild left ventricular hypertrophy, focal cyocarditis which was more when tobacco glycoprotein was used with PPD. Accelerated atherogenesis and vasculitis of aorta and other vessels were observed.

**9201-0203** Lam, L.K.T., Zheng, B.L.(LKT Laboratories, Incorporations 2010 East Hennepin Avenue, Minneapolis,

Minnesota 55418, USA) **Effects of essential oils on glutathione S-transferase activity in mice.** *Journal of Agricultural and Food Chemistry*, v. 39(4): p. 660-662, 1991 (17 ref, Eng).

A total of 30 essential oils and 16 of their processing byproducts were assayed for their ability to induce increased activity of the detoxifying enzyme system glutathione S-transferase in A/J mice. Enzyme induction in the cytosols of the liver, forestomach, and small intestinal mucosa was examined. Test samples that elicited enzyme activity greater than 2.5 times the control level in at least one of the three tissues studied were considered active. By use of this criterion, 26 active substances were obtained. They were categorized into three groups according to their enzyme-inducing activity in different tissues. The first group had nine samples that induced enzyme activity significantly higher than that of the control in all three tissues examined. A second group of nine samples induced 3 times the enzyme activity in the mucosa. A third group of eight samples was found to increase enzyme activity greater than 2.5 times the control in either the liver or mucosa. Since anticarcinogenic activity of compounds has been found to correlate with their ability to induce increased activity of detoxifying enzymes, the active samples are good candidates for the isolation of potential chemopreventive agents.

**9201-0204** Lancaster, M.J., Vit, I.V., Lyford, R.L.(Regional Veterinary Laboratory, Department of Agriculture, P.O. Box 388, Benalla, Victoria 3672, Australia) **Analysis of bile crystals from sheep grazing Panicum schinzii (sweet grass).** *Australian Veterinary Journal*, v. 68(8): p. 281, 1991 (6 ref, Eng).

The mass spectral evidence has indicated that a steroidal sapogenin, very similar to smilagenin, was present in bile crystals from lambs grazing *P.schinzii*, although its presence in the plant has not yet been confirmed.

**9201-0205** Lanhers, M.C., Fleurentin, J.* , Cabalion, P., Rolland, A., Dorfman, P. , Misslin, R., Pelt, J.M.(Societe Francaise d'Ethnopharmacologie, Cloitre des Recollets F-57000 Metz, France) **Behavioral effects of Euphorbia hirta L.: Sedative and anxiolyticproperties.** *Journal of Ethnopharmacology*, v. 29(2): p. 189-198 , 1990 (24 ref, Eng).

Lyophilized aqueous extract of *Euphorbia hirta* did not induce any toxic effect in mice when administered i.p. and orally. Sedative properties could be confirmed with high doses (100 mg of dried plant/kg, and more), by a decrease of behavioral parameters measured in non-familiar environment tests(active test and staircase test),whereas anticonflict effects appeared at lower doses (12.5, and 25mg of dried plant/kg), by an enhancement of behavioral parameters measured in the staircase test and in the light/dark choice situation test. These findings validate the traditional use of this plant as a sedative and reveal original anxiolytic properties. NML, New Delhi.

**9201-0206** Lei. H.Q., Xu, Y.X.(Department of Pharmacology, Xian Medical University, Xian 710061, China) **Effects of gossypol acetic acid on transport and development of fertilized eggs in rats.** *Acta Pharmaceutica Sinica*, v. 25(8): p. 561-565, 1990 (6 ref, Chi , Eng).

The effects of gossypol acetic acid (isolated from *Gossypium spp* on the transport and development of fertilized eggs have been observed in rats. The results showed that gossypol acetic acid apparently delayed egg transport and retarded early development of the embryo in the oviduct. It is suggested that these two effects may be important causes of the antiimplantation action of gossypol.

**9201-0207** Leinmuller, E., Steingass, H. , Menke, K.H.(Institute for Animal Nutrition, University of Hohenbeim, FRG) **Tannins in ruminant feed stuffs.** *Animal Research and Development*, v. 33: p. 9-62, 1991 (320 ref, Eng).

Many fodder trees have high contents (upto 50 percent) of secondary ingredients particularly tannins, which can have a negative effect on nutritional value. A review of the occurrence , functions, effects on ruminant metabolism in vitro, digestibility, toxic effects etc. of a number of plant tannins is given.

**9201-0208** Lewis, W.H., Avioli, L.V.(Washington University, St. Louis, MO 63130, USA) **Leaves of Ehretia cymosa (Boraginaceae) used to heal fractures in Ghana increase bone remodeling.** *Economic Botany*, v. 45(2): p. 281-282, 1991 (8 ref, Eng).

Using [Ehretia cymosa] leaves to aid in the healing process of fractured bones is a highly valued remedy which has been carefully guarded through generations of traditional practitioners in Southern Ghana. In order to examine the healing process,leaf extract was assayed for its bone remodeling potency in rat calvariat bone. Significant increase in bone turn over was observed thus confirming the use [Ehretia cymosa] leaf extracts in bone healing.

**9201-0209** Lin, R.C., Peyroux, J., Seguin, E. , Koch, M.* (Universite Rene Descartes, Faculte des Sciences Pharmaceutiques et Biologiques, 4 Avenue de I'Observatoire, 75006, Paris) **Hypertensive effect of glycosidic derivatives of hordenine isolated from Selaginella doederleinii Hieron and structural analogues in rats.** *Phytotherapy Research*, v. 5(4): p. 188-190, 1991 (3 ref, Eng).

The effect of glycosidic derivatives of hordenine isolated from *S.doederleinii* and synthetic analogues has been

studied on rat blood pressure after oral administration. A hypertensive activity was observed for the first time in this series which supports the Chinese traditional medicinal use of the plant.

**9201-0210** Liu, C.X., Ye, G.Z.(Tianjin Institute of Pharmaceutical Research, The State Pharmaceutical Administration of China, 308 An-shan West Road, 300193 Tianjin, People's Republic of China) **Choleretic activity of p-hydroxyacetophenone isolated from Artemisia scoparia Waldst. et Kit. in the rat.** *Phytotherapy Research*, v. 5(4): p. 182-184, 1991 (8 ref, Eng).

Intraduodenal injection of p-hydroxyacetophenone (PAP) isolated from *Artemisia scoparia* (oriental worm wood) at a dose of 50 mg/kg to normal rats produced significant choleretic activity. At doses of 12.5-250 mg/kg, the relationship between bile secretion and dose was linear. To rats whose liver had been injured by nithiocyamine, intraduodenal injection of PAP at a dose of 50 mg/kg produced a significant increase in bile secretion, solid materials and bile acids in bile. Oral administration of PAP at a dose of 50 mg/kg day for 4 days reduced the serum icterus index and bilirubin.

**9201-0211** Liu, C.X., Xiao, P.G., Liu, G.S.(Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Beijing 100094, People's Republic of China) **Studies on plant resources, pharmacology and clinical treatment with berbamine.** *Phytotherapy Research*, v. 5(5): p. 228-230, 1991 (8 ref, Eng).

In the present paper, the plant resources, chemistry, pharmacology and clinical therapy of berbamine are reported. From a botanical survey it was found that there are 32 species of *Berberis* (Shan-ke-zhen) plants containing berbamine utilized in China. Pharmacological studies demonstrated that berbamine possesses significant leukogenic effects in rats and dogs injured by an anticancer agent, and clinical observations demonstrated a therapeutic effect in 405 patients with leukopenia. It is suggested that berbamine may not be useful as a leukogenic drug but is also useful as an adjuvant in cancer chemotherapy and radiotherapy.

**9201-0212** Love, R.J., Peacock, A.J., Evans, G.(The University of Sydney, Camden, New South Wales 2570, Australia) **Premature farrowings caused by feeding cottonseed meal.** *Australian Veterinary Journal*, v. 67(6): p. 223-226 , 1990 (14 ref, Eng).

Increasing the level of cottonseed (*Gossypium*) meal (CSM) in sow diets from 5 to 10 percent increased the incidence of premature farrowings (gestation length 111 days) from 1.1 to 2.7 percent and reduced the mean gestation length from 114.07 + I1.53 to 113.70 + I1.59 days. Survival of piglets born prematurely was poor. After removal of CSM from the diet there was a residual effect lasting several weeks before the gestation length returned to normal. Experimental feeding of diets containing 20 and 40 percent CSM to small groups of sows caused significant shortening of gestation length and 3 of 26 sows fed 40 percent CSM farrowed prematurely. The mechanism by which CSM causes this effect has yet to be determined.

**9201-0213** Lovell, C.R., Rowan, M.(Department of Dermatology, Royal Unit Hospital, Combe Park, Bath BA1 3NG, UK) **Dandelion dermatitis.** *Contact Dermatitis*, v. 25(3): p. 185-188, 1991 (10 ref, Eng).

Seven subjects, each giving a history suggesting dandelion (*Taraxacum officinale*) dermatitis, were patch tested with extracts of dandelion as well as with other common members of the Compositae and to the sesquiterpene-lactone-mix. All were positive to dendelion extracts but only 2 reacted to the sesquiterpene-lactone-mix..Although the mix is a useful screening test for chrysanthemum dermatitis, it may miss dandelion allergy.

**9201-0214** Lu, H., Liu, G.T.(Department of Pharmacology, Institute of Materia Medica, Chinese Academy of Medical Sciences, 100050 Beijing, China) **Effect of dibenzo[a,c]-cyclooctene lignans isolated from Fructus schizandrae on lipid peroxidation and antioxidative enzyme activity.** *Chemico-Biological Interactions*, v. 78(1): p. 77-84 , 1991 (16 ref, Eng).

Effect of nine lignans isolated from *F.schizandrae* on *in vitro* and *in vivo* lipid peroxidation of liver microsomes as well as on antioxidative enzyme activities has been reported. Seven of the nine lignans showed inhibition of lipid peroxidation of rat liver microsomes. Of these compounds, schisanhenol, S(-)schizandrin C(S(-)sin C) and S(-)schizandrin B (S(-)sin B) were found to be more potent than Vit-E at the same concentration. IARI, New Delhi.

**9201-0215** Luo, B., Kobayashi,S.*, Kimura, I. , Kimura, M. (Department of Chemical Pharmacology, Faculty of Pharmaceutical Sciences, Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama 930-01, Japan) **Inhibitory effects on angiogenesis and pouch fluid exudation by aconite alkaloids in adjuvant-induced inflammation of the mouse.** *Phytotherapy Research*, v. 5(5): p. 231-233, 1991 (12 ref, Eng).

The antiinflammatory effect of water extract of aconite root and its constituent alkaloids on adjuvant-induced air pouch granuloma in the mouse was investigated. Aconite alkaloids were more potent than, and aconite extracts were equipotential to, hydrocortisone and

indomethacin against angiogenesis in chronic inflammation.

**9201-0216** Mahran, G.H., El-Fishawy, A.M. , Hosny, A.M.S., Hilal, A.M.(Pharmacognosy Department, Faculty of Pharmacy, Cairo University, Cairo, 11562, Egypt) **Phytochemical and antimicrobial study of Jacaranda mimosaefolia D.Don.grown in Egypt.** *Herba Hungarica*, v. 30(1-2): p. 98-108, 1991 (27 ref, Eng, Hun).

The mucilages of twigs (4.2 percent) and pericarp (1.7 percent) of *J.mimosaefolia* as well as the protein of the seeds (9.8 percent) were studied. The microbiological study of the lyophylized aqueous extract of the twigs showed a high and broad activity against human urinary tract isolates, especially *Pseudomonas* Sp. Ointments of water soluble extracts were found comparable to available commercial ointments against some pyogenic organisms.

**9201-0217** Mahran, G.H., Kadry, H.A., Isaac, Z.G., Thabet, C.K., Al-Azizi, M.M. , El-Olemy, M.M.*(Department of Pharmacognosy, Faculty of Pharmacy, Cairo University, Cairo, Egypt) **Investigation of diuretic drug plants. 1. Phytochemical screening and pharmacological evaluation of Anethum graveolens L., Apium graveolens L., Daucus carota L. and Eruca sativa Mill..** *Phytotherapy Research*, v. 5(4): p. 169-172, 1991 (14 ref, Eng).

A preliminary phytochemical screening of fruits of *A.graveolens, A.graveolens, D.carota* and seeds of *E.sativa*, revealed the presence of volatile oil, sterols and/or triterpenes, carbohydrates and/or glycosides, tannins and flavonoids in the four entitled plants; Glucosinolates were detected only in *Eruca* seeds. Pharmacological evaluation of the aforementioned plants for diuretic activity has shown the ethanolic extracts of *E.sativa* seeds and fruits of *A.graveolens, D.carota* as well as the volatile oils in the former two plants to produce an increase in urine flow in dogs. Volatile oil of *Eruca* seeds, significantly, increased Na+, K+ and Cl- excretion in urine, whereas *A.graveolens* volatile oil significantly increased Na+ and Cl-excretion only.

**9201-0218** Marks, H.S., Leichtweis, H.C. , Stoewsand, G.S. (Department of Food Science and Technology, New York State Agricultural Experimental Station, Cornell University, Geneva, New York 4456, USA) **Analysis of a reported organosulphur, carcinogenesis inhibitor: 1,2-dithiole-3-thione in cabbage.** *Journal of Agricultural and Food Chemistry*, v. 39(5): p. 893-895, 1991 (14 ref, Eng).

The putative occurrence of naturally occurring chemical carcinogenisis inhibitor, 1,2-dithiole-3-thione in cabbage (*Brassica oleracea*) was investigated by utilizing both reversed phase HPLC and capillary GC-MS. Although a number of previously identified organosulphur compounds were isolated in various cabbage extracts, this study did not reveal 1,2-dithiole-3-thione naturally occurring in cabbage. In addition, two novel organo-sulfur compounds have been preliminarily identified in cabbage, but these compounds and the previously identified dithiolethiones may have originated by thermal sulphurization reactions.

**9201-0219** Mathur, R.(School of Studies in Zoology, Jiwaji University, Gwalior 4474 011,MP, India) **Protective action of Liv-52 against beryllium toxicity in rats. [No. S-21.7, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, Nov 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 127, 1991 (Eng).

Beryllium (0.03/mg/kg dose) was injected i.v. to Liv.52 primed and non-primed rats. Beryllium per se treatment caused degenerative changes in all organs. However, Liv 52 treated rats, did not show these biochemical and histological changes.

**9201-0220** Matsuda, H., Tanaka, T., Kubo, M.(Faculty of Pharmaceutical Sciences, Kinki University, 3-4-1, Kowakae, Higashiosaka, Osaka 577, Japan) **Pharmacological studies on leaf of Arctostaphylos uva-ursi (L.) Spreng. III. Combined effect of arbutin and indomethacin on immuno-inflammation.** *Yakugaku Zasshi*, v. 111(4,5): p. 253-258, 1991 (4 ref, Jap).

Combined effect of arbutin isolated from the leaves of *A.uva-ursi* (Bearberry leaf) and indomethacin on Type IV allergic reaction-induced immuno-inflammation, carrageenin-induced edema and adjuvant-induced arthritis is reported. Contact dermatitis caused by picryl chloride (PC-CD) and sheep red cell delayed type hypersensitivity (SRBC-DTH) was not inhibited by the oral application of arbutin at 2 divided doses immediately before and 16 h after the application, but arbutin at dose of 50 mg/kg 24 h after the application rapidly decreased the swelling of PC-CD. Arbutin (p.o) plus indomethacin (s.c.) showed inhibitory effect on the swelling of PC-CD and SRBC-DTH stronger than that of indomethacin alone. When arbutin (p.o.) and indomethacin (s.c.) in a given portion were simultaneously administered, the inhibitory effect was more potent than that of indomethacin alone in both carrageenin-induced edema and adjuvant-induced arthritis.

**9201-0221** McKenzie, R.A.(Queensland Department of Primary Industries, Animal Research Institute, Yeerongpilly, Queensland 4105, Australia) **Bentonite as therapy for Lantana camara poisoning of cattle.** *Australian Veterinary Journal*, v. 68(4): p. 146-148 , 1991 (26 ref, Eng).

Bentonite was compared with activated charcoal as therapy for lantana poisoning in calves dosed 5 d previously with leaf material of the common pink-edged red taxon of *L.camara*. Both therapies were given by stomach tube as a single dose at 5 g/kg. Five of 6 calves in each of the groups given bentonite and activated charcoal recovered while 5 of 6 calves in the control group died. Calves given bentonite took 3 d longer on average to recover fully than those given activated charcoal but the effects of the 2 therapies on plasma total biilirubin concentrations were statistically indistinguishable. Bentonite was judged to have promise as a cheap alternative to activated charcoal for therapy of lantana poisoning of cattle.

**9201-0222** Min, Z., Peigen, X.*(Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Haidian District, Xibeiwang, Beijing 100 094, China) **Quantitative analysis of the active constituents in green tea.** *Phytotherapy Research*, v. 5(5): p. 239-240, 1991 (12 ref, Eng).

Since green tea has been reported to exhibit the effects of promoting antitumour activity, antimutagenicity and antioxidation, its active components have been analyzed by high performance thin layer chromatography (HPTLC).It is suggested that drinking green tea at normal levels daily is not sufficient to produce pharmacological actions.

**9201-0223** Mizoguchi, Y., Kawada, N., Ichikawa, Y., Tsutsui, H. (Third Department of Internal Medicine, Osaka City University Medical School, 1-5-7 Asahi-machi, Abeno-ku, Osaka 545, Japan) **Effect of gomisin A in the prevention of acute hepatic failure induction.** *Planta Medica*, v. 57(4): p. 320-324, 1991 (10 ref, Eng).

Nearly all rats develop massive hepatic cell necrosis and die upon intravenous administration of heat-killed Propionibacterium acnes followed by a small amount of Gram-negative lipopolysaccharide seven days later. However, when such an experimental liver disorder is induced in rats raised for four or more weeks on food containing of 0.06 percent of gomisin A extracted and purified from *S.chinensis*, the survival rate rises, histological changes of the liver improve remarkably, and splenocyte reactivity to phytohemagglutinin and pokeweed mitogen as well as splenocyte interleukin 1 productivity are retained. These results suggested the possibility that the development of acute hepatic failure may be prevented with the oral administration of gomisin A.

**9201-0224** Murakami, S., Isobe, Y., Kijima, H. , Nagai, H., Muramatu, M., Otomo, S.(Research Center, Taisho Pharmaceutical Co. Ltd., 1-403 Yoshino-cho, Ohmiya, Saitama 330, Japan) **Inhibition of gastric H+,K+-ATPase and acid secretion by ellagic acid.** *Planta Medica*, v. 57(4): p. 305-308, 1991 (25 ref, Eng).

Ellagic acid inhibited hog gastric H+,K+-ATPase activity with a 50 percent inhibition at 2.1 x 10-6M. Kinetic studies showed that the inhibition of H+,K+-ATPase by ellagic acid is competitive with respect to ATP and is noncompetitive with respect to K+. Intraperitoneal administration of ellagic acid at above 5 mg/kg markedly reduced the occurrence of gastric lesion. Ellagic acid significantly reduced acid secretion at the same doses. These results suggest that ellagic acid has a marked inhibitory effect on acid secretion and the occurrence of stress-induced gastric lesions, and these effects may be attributed to the inhibition of H+,K+-ATPase activity.

**9201-0225** Murugavel, T., Akbarsha, M.A.*(School of Life Sciences, Bharthidasan University, Tiruchirapalli 620020, TN, India) **Anti-spermatogenic effect of Vinca rosea Linn..** *Indian Journal of Experimental Biology*, v. 29(9): p. 810-812, 1991 (17 ref, Eng).

Regressive changes in seminiferous tubules and Leydig cells, increased cholesterol content in testis, and degeneration of all germinal elements other than spermatogonia were observed in the male Swiss albino mice, treated with aqueous extract of *V.rosea* leaves for 24 days. While the results reflect antiandrogenic and antispermatogenic action of *V.rosea*, the selective retention of the spermatogonia provides scope for the much desired revival of spermatogenesis on cessation of the treatment.

**9201-0226** Nadeem, M., Pasha, K.V., Jain, S.K. , Khan, E.A., Dandiya, P.C.(Department of Pharmacology, Faculty of Pharmacy, Jamia Hamdard, New Delhi-110062, India) **Hepatoprotective activity of Solanum nigrum (Mako) [No.P-1.113, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, November 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 238, 1991 (Eng).

Paracetamol and carbontetrachloride induced hepatotoxicity in albino rats was treated with total fruit powder and its extracts and the levels of serum transaminases were followed. The drug showed hepatoprotective action in fruit powder form only. Diarrhoea, lethagy and pyloric obstruction have been observed with higher doses of fruit powder. Mortality with higher doses of alcoholic and pet ether extracts has been observed.

**9201-0227** Nakase, K., Kimura, I.*, Kimura, M.(Faculty of Pharmaceutical Sciences, Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama 930-01, Japan) **Inhibitory effect of rehmaionoside B, a con-**

**stituent of Rehmaniae radix, on isolated bladder and urethral smooth muscle of mice.** *Phytotherapy Research*, v. 5(2): p. 67-71, 1991 (12 ref , Eng).

Of the five constituents investigated, rehmaionoside B (1 mg/mL) most effectively inhibited the contraction induced by noradrenaline (10 microg/mL) in urethral smooth muscle. These constituents, especially rehmaionoside B, not only inhibited the spontaneous contraction but slightly relaxed the normal tone of the bladder smooth muscle. The relaxation induced by rehmaionoside B (0.1 mg/mL) corresponded to 26.4 percent of the isoproterenol (1 microg/mL) response. Rehmaionoside B also inhibited the PGF2alpha-induced spontaneous contraction of the bladder. The treatment with rehmaionoside B significantly inhibited arachidonic acid-induced contraction of the bladder. This response was similar to that induced by indomethacin. Rehmaionoside B inhibited both urethral and bladder smooth muscle, which may affect micturition. The effect of rehmaionoside B on the bladder was an indomethacin-like action.

**9201-0228** Nasiruddin, A., Pritam, M.(Department of Pharmacology and Toxicology, College of Veterinary Science AAU, Khanapara, Guwahati 781 002, India) **Toxicologic and pharmacodynamic studies of Lantana camara Linn.- An indigenous toxic plant [No. P-1.60, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 213, 1991 (Eng).

A study was undertaken to explore the toxicologic and pharmacodynamic effects of *L.camara* levels. Methanolic extract of the dried leaves of lantana failed to produce acute toxicity in albino mice and rats. But albino rabbits were susceptible to lantana toxicity and showed delayed toxic effects. The approximate oral LD50 (12 days) of the extract in rabbits was 10 g/kg. The toxic effects were mainly off-fed and icterus. The serum bilirubin level, SAP and SGOT were significantly increased but the SGPT activity remained unaffected in lantana-treated rabbits. Lantana extract (100 and 200 mg/kg) orally showed significant analgestic and anti-inflammatory effect but no anti-convulsant effect. It significantly reduced pentobarbital induced hypnosis and showed inhibitory effect on hepatic microsomal enzyme activity in mice. The extract produced a transient fall in dog blood pressure and -ve inotropic and chronotropic effect on isolated frog heart. It had varied responses on isolated guineapig ileum, oestrogenised rat uterus and frog skeletal muscle.

**9201-0229** Noamesi, B.K., Bogale, M., Dagne, E.*(Department of Chemistry, Faculty of Science, Addis Ababa University, P.O.Box 1176, Addis Ababa, Ethiopia) **Intestinal smooth muscle spasmolytic actions of the aqueous extract of the roots of Taverniera abyssinica.** *Journal of Ethnopharmacology*, v. 30(1): p. 107-113 , 1990 (6 ref, Eng).

A room temperature aqueous extract of the roots of *T.abyssinica* antagonized the contractile responses of guinea pig ileum to acetylcholine and histamine. The extract also relaxed the smooth muscle of the rabbit duodenum, abolished the pendular contractions and antagoniged the effects of acetylcholine and histanine on this tissue. The results confirm that there may be a sound pharmacological basis for the ethnomedical use of the roots of this plant to treat stomach ache. NML, New Delhi.

**9201-0230** Obidoa, O., Obasi, S.C.(Department of Biochemistry University of Nigeria, Nsukka, Nigeria) **Coumarin compounds in cassava diets: 2, health implications of scopoletin in gari.** *Plant Foods for Human Nutrition*, v. 41(3): p. 283-289 , 1991 (36 ref, Eng).

Scopoletin has been isolated and identified in gari, a cassava (*Manihot esculenta*) food consumed in Nigeria. Its levels in gari and cassava flour is not altered by post processing treatments such as sundrying, refrigeration and storage. Scopoletin has also been identified as an active principle in the traditional herbal infusion of the fruit of *Tetrapleura tetraptera* TAUB used in the ethnopharmacology of Nigeria. It is a potent hypotensive and non-specific spasmolytic agent. These pharmacological effects of Scopoletin are probably the underlying factors in the slowly developing tropical neuropathy characterised by optic atrophy, nerve deafness and ataxia endemic among populations subsisting on cassava diets such as gari. Hitherto, these toxicities were attributed to cyanogenic glucosides (cyanide) present in cassava.

**9201-0231** Okanla, E.O., Owoyale, J.A. , Akinyanju, J.A.(Department of Biological Sciences, University of Ilorin, P M B 1515, Ilorin, Kwara State, Nigeria) **Trypanocidal effect of an aqueous extract of Acalypha hispida leaves.** *Journal of Ethnopharmacology*, v. 29(2): p. 233-237 , 1990 (10 ref, Eng).

Aqueous extract of the leaves of *A.hispida* exhibited antitrypanosome activity in rats. However, the extract was highly toxic to animals. NML, New Delhi.

**9201-0232** Orabi, K.Y., Mossa, J.S., El-Feraly, S.*(Department of Pharmacognosy and Medicinal, Aromatic and Poisonous Plants Research Center, College of Pharmacy, King Saud University, Riyadh 11451, Saudi Arabia) **Isolation and characterization of two antimicrobial agents from mace (Myristica fragrans).** *Journal of Natural Products*, v. 54(3): p. 856-859 , 1991 (10 ref, Eng).

The two antimicrobial resorcinols malabaricone B and malabaricone C were isolated from mace, the dried seed covers of *M.fragrans*. Both compounds exhibited strong antifungal and antibacterial activities. Structure modifications by methylation or reduction resulted in diminished activity.

**9201-0233** Pages, N., Fournier, G., Chamorro, G., Salazar, M. (Laboratoires de Toxicologie et de Pharmacognoisie, Faculte de Pharmacie, 5 Rue J.B. Clement, 92296 Chatenay-Malabry, France) **Teratogenic effects of Plectranthus fruticosus essential oil in mice.** *Phytotherapy Research*, v. 5(2): p. 94-96, 1991 (11 ref, Eng).

The teratogenic potential of *P fruticosus* essential oil was evaluated in Swiss-OF1 mice injected subcutaneously. They received daily 0, 15, 45 or 135 mg/kg body weight on days 6 to 15 of gestation. A slight maternal toxicity, as evidenced by reduced weight gain and some physical alterations, was observed among treated groups compared with controls. Animals were killed and subjected to uterine examination on day 17 of pregnancy. The essential oil induced both embryo- and feto-toxicity in the three treated groups, as manifested by a statistically significant increase in the numbers of resorbed and malformed fetuses. The observed malformations were predominantly related to the eyes (anophthalmia).

**9201-0234** Palanichamy, S., Nagarajan, S.*(Department of Chemistry, Bharathidasan University, Tiruchirapalli 620024, India) **Analgesic activity of Cassia alata leaf extract and kaempferol 3-O-sophoroside.** *Journal of Ethnopharmacology*, v. 29(1): p. 73-78 , 1990 (11 ref, Eng).

Ethanolic extract of the leaves of *C.alata* exhibited maximum analgesic activity in rats and mice 120 min after injection. Fifty milligrams of kaempferol 3-O-sophoroside appeared equivalent to 100 mg of the alcoholic extract. NML, New Delhi.

**9201-0235** Palanichamy, S., Bhaskar, E.A. , Nagarajan, S. (Department of Pharmacology, Thanjavur Medical College, Thanjavur 613 004, TN, India) **Effect of Cassia alata leaf extract on mast cell stabilization.** *Indian Journal of Pharmacology*, v. 23(3): p. 189-191 , 1991 (11 ref, Eng).

The effect of solvent free leaf extract of *C.alata* has been studied for its mast cell stabilization against a mast cell degranulator carbachol. Pretreatment with leaf extract at the dose levels of 10,100,1000 microg/ml significantly reduced the percentage of degranulation of mast cell. NSL, New Delhi.

**9201-0236** Palmer, V.S.(Third World Medical Research Foundation, New York, USA) **INILSEL - a global exercise in applied toxicology to reduce malnutrition and prevent crippling desease [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, Nov.24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 112, 1991 (Eng).

INILSEL, [The International Network for the Improvement of *Lathyrus sativus* and the Eradication of Lathyrism] sponsors and conducts multidisciplinary research on nutritional, toxic and other diseases that affect large number of people in developing regions. Its main aim is to develop a non-toxic strain of *L.sativus*.

**9201-0237** Petrovick, P.R., Knorst, M.T.(Post Graduate Course of Pharmacy, University of Rio Grande do Sul, Av. Ipiranga, 2752, 90610 Porto Alegre/RS, Brazil) **Characterization of a concentrated extract of Achyrocline satureioides as an intermediary product in the preparation of an ointment.** *Phytotherapy Research*, v. 5(5): p. 237-238, 1991 (6 ref, Eng).

*A.satureioides* is reported to have antiinflammatory activity after oral and topical administration. The use of a concentrated extract as the raw material for the preparation of a plastic pharmaceutical dosage form is examined. Loss on drying, chromatographic evaluation of the major constituents and quantitative assay of quercetin were found to be adequate for characterizing the extract.

**9201-0238** Pigatto, P.D., Bigardi, A. , Fumogalli, M., Legori, A., Altomare, G.F.(2nd Department of Dermatology, University of Milan, Via Pace 9, 20122 Milan, Italy) **Ig-E-mediated contact and generalized urticaria from Eruca sativa.** *Contact Dermatitis*, v. 25(3): p. 191-192, 1991 (4 ref, Eng).

Case of a 43-years old man, who had had a severe episode of urticaria, associated with an eruption of weals on the hands and arms, after handling and tasting *E.sativa* (rocket, taramira)has been described. Prick test with water extract of *E.sativa* leaves gave a strongly positive weal-and-flare reaction. Of 5 controls, 3 gave a minimal erythema only, and 2 were negative. A skin-applied-food test was negative, whereas a scratch-patch test with the same material was positive. This is the first case of Ig-E-mediated contact and generalized urticaria from *E.sativa*.

**9201-0239** Pongprayoon, U., Bohlin, L.* , Soonthornsaratune, P., Wasuwat, S.(Department of Pharmacognosy, Biomedical Center, Uppsala University, Box 579, 751 23 Uppsala, Sweden) **Antiinflammatory activity of Ipomoea pes-caprae (L.) R. Br..** *Phytotherapy Research*, v. 5(2): p. 91-93, 1991 (9 ref, Eng).

The antiinflammatory activity of an extract from the leaves of *I.pes-caprae*, used as a traditional remedy for different types of inflammation, was investigated using experimental models of acute inflammation. Topical application of the extract inhibited carrageenan-induced paw oedema and ear oedema induced in rats by arachidonic acid or ethyl phenylpropiolate. In vitro prostaglandin formation was inhibited by the extract in a concentration-dependent manner, with a potency equal to that of aspirin but considerably less than that of indomethacin. This study shows that *I.pes-caprae* has a significant antiinflammatory activity, probably due to a reduction of prostaglandin and leukotriene formation. Thus, in addition to earlier results, this work further supports the use of *I. pes-caprae* as an antiinflammatory agent in traditional medicine.

**9201-0240** Pradeep, K.U., Geervani, P., Eggum, B.O.(Post Graduate and Research Centre, Home Science Faculty, AP Agricultural University, Hyderabad 500 030, AP, India) **Influence of spices on utilization of sorghum and chickpea protein.** *Plant Foods for Human Nutrition*, v. 41(3): p. 269-276 , 1991 (29 ref, Eng).

Influence of eight common Indian spices on the protein quality of sorghum and chickpea was studied in rats. Spices used include *Capsicum annum, Piper nigrum, Coriandrum sativum, Cuminum cyminum, Allium sativum, Ferula foetida, Zingiber officinale* and *Carum copticum*. Addition of spices did not affect protein digestibility (TD) of sorghum. The BV of all sorghum diets with spices was higher than that of control diet. However, it was significant only in case of diets combined with red chilli + coriander (1:1) mix, black pepper + cumin (1:1) mix, coriander and cumin. Addition of spices did not have any effect on TD or BV of chickpea diets.

**9201-0241** Qureshi, M.A., Qureshi, N.M. , Arshad, R., Rais Begum (Hormone Research Laboratory, Physiology Department, University of Karachi, Karachi 75270, Paksitan) **Study on the antisperm activity in extracts from different parts of Calotropis procera.** *Pakistan Journal of Zoology*, v. 23(2): p. 161-165 , 1991 (27 ref, Eng).

The crude alcoholic extracts and after saponification from the roots, stem, leaves and flowers of *C.procera* were tested for spermicidal activity in in vitro bioassay. The flower and root extracts demonstrated positive effect on sperm motility which may be due to the lipoidal components present in the extracts. Need for work on active components from flower for their antispermatogenic activity is stressed.

**9201-0242** Rafatullah, S., Tariq, M.* , Al-Yahya, M.A., Mossa, J.S. , Ageel, A.M.(Medicinal, Aromatic and Poisonous Plants Research Centre and Department of Pharmacology and Pharmacognosy, College of Pharmacy, King Saud University, PO Box 2457, Riyadh 11451, Saudi Arabia) **Evaluation of turmeric (Curcuma longa), for gastric and duodenal antiulcer activity in rats.** *Journal of Ethnopharmacology*, v. 29(1): p. 25-34 , 1990 (42 ref, Eng).

An oral dose of 500 mg/kg of the ethanol extract of turmeric produced significant antiulcerogenic activity in rats subjected to hypothermic-restraint stress, pyloruic ligation and indomethacin and reserpine administration. The extract had a highly significant protective effect against cystodestructive agents. Turmeric extract not only increased the gastric wall mucus significantly but also restored the non-protein sulfhydryl (NP-SH) content in the glandular stomachs of the rats. NML, New Delhi.

**9201-0243** Rajan, A., Sreekumaran, T., Abraham, M.J., Vijayakumar, V.(Centre of Excellence in Pathology, College of Veterinary and Animal Sciences, Mannuthy, Trichur, Kerala, India) **An assessment of goitrogenic effect of tamarind seed meal (Tamarindus indica).** *Kerala Journal of Veterinary Science*, v. 20(1): p. 40-43 , 1989 (Recd. 1991, Eng).

Mice fed diet containing 20 percent tamarind seed meal did not show any change in thyroxine levels and histological changes in the thyroid. This indicates that tamarindus seed meal has no goitrogenic effect. NSL, New Delhi.

**9201-0244** Ramachandran, U., Divekar, H.M. , Grover, S.K., Srivastava, K.K.*(Defence Institute of Physiology and Allied Sciences, Delhi Cantt. 110010, India) **New experimental model for the evaluation of adaptogenic products.** *Journal of Ethnopharmacology*, v. 29(3): p. 275-281 , 1990 (10 ref, Eng).

A new animal model for evaluating improvement in physical performance and endurance in an adverse environment is described. In this model, rats in restraint were exposed to 5 degree C and 480 mmHg atmospheric pressure. Results were compared to an animal forced to swim in water at 23 degree C. The cold-hypogia-restraint model was found to provide more precise results compared with the cold-swimming model. *Panax ginseng* root and *Ginkgo biloba* leaf extracts have been compared for their positive endurance-promoting properties using both models. NML, New Delhi.

**9201-0245** Sabherwal, V., Roy, T.S., Bijlani, V.(Department of Anatomy, All India Institute of Medical Sciences, New Delhi 110029, India) **Neurotoxic effects of prenatal nicotine [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, 24-28 Nov. 1991.** *International Journal of Toxicol-*

*ogy, Occupational and Environmental Health*, v. 1(1): p. 137, 1991 (Eng).

Experiments have been conducted to study the morphology of the hippocampal region of brain after prenatal nicotine treatment (2.5 microg/kg/day, given i.p. from days 6 of pregnancy to term) in female Wistar rats. Pups were delivered normally and the morphology of the brain was studied. The results suggest that prenatal nicotine delays maturation and has neurotoxic effect on the hippo campal neurons, which may be responsible for the behavioral changes, seen in the offsprings after prenatal nicotine exposure.

**9201-0246** Sakurai, E., Yamasaki, S., Iizuka, Y., Hikichi, N., Niwa, H.(Tohoku College of Pharmacy, 4-4-1, Komatsushima, Aoba-ku, Sendai 981, Japan) **Diarrhea and biogenic amines: Regional changes in brain histamine concentration and serotonin metabolism following castor oil-induced diarrhea in rats.** *Yakugaku Zasshi*, v. 111(4,5): p. 241-246, 1991 (19 ref, Jap, Eng).

Regional changes in concentrations of histamine (HA), serotonin (5-HT) and 5-hydroxyindoleacetic acid (5-HIAA) in the rat brain investigated after diarrhea induced by castor oil showed significant decrease in body weight from the 3rd day after daily oral administration of castor oil (2.5 ml/kg). HA concentration in most brain regions decreased in diarrhea induced by a single administration of castor oil. HA concentration in the striatal and hypothalamic regions of the rat treated with castor oil for 9 d significantly decreased in comparison with the control group. An inhibition of 5-HT turnover was observed in the thalamus at 3 h after a single administration of castor oil. However, this inhibition was not found in rats treated with castor oil for 3 d. Moreover, 5-HT concentration in the midbrain significantly decreased in rats that acquired the adaptability for the occurrence of diarrhea.

**9201-0247** Sani, Y., Atwell, R.B., Seawright, A.A.(School of Veterinary Science, University of Queensland, St. Lucia, Queensland 4072, Australia) **The cardiotoxicity of avocado leaves.** *Australian Veterinary Journal*, v. 68(4): p. 150-151 , 1991 (6 ref, Eng).

Clinicopathological basis for avocado (*Persea gratissima*) leaf poisoning in goats has been studied. However, the agents responsble for the toxic effects are not known.

**9201-0248** Santhosh Kumari, K.S., Devi, K.S.(Department of Biochemistry, Kariavallom Trivandrum, Kerala, India) **Pharmacological and biochemical effects of few indigenous drugs.** *Indian Journal of Pharmacology*, v. 23(3): p. 160-163 , 1991 (5 ref, Eng).

Effect of administration of Ayurvedic drugs Nisakathakathi kashayam (NK), and Rasnairandaki Kashayam (RK) and their mixture (2:1 v/v) in a dose of 1ml/kg body weight/day in normal, diabetic, diabetic hypertensive and diabetic hyper-cholesterolemic rabbits were studied. No toxic reaction was observed in mice on administration of NK, and RK. RK and the mixture of NK and RK caused decrease in the blood pressure of diabetic hypertensive rabbits. RK increased acetylcholine induced spasm but NK did not, NK showed +ve inotropic effect whereas RK first showed a cardiac arrest followed by a + ve inotropic effect. Administration of NK and RK and its mixture to rabbits decreased fasting blood glucose and serum cholesterol and the effect was more significant in the case of mixture. NSL, New Delhi.

**9201-0249** Santosh Kumari, K.S., Devi, K.S.(Department of Biochemistry, University of Kerala, Trivandrum, India) **Blood glucose and lipids in diabetic rabbits treated with indigenous medicines.** *Arogya-Journal of Health Science*, v. 16(2): p. 138-143 , 1990 (14 ref, Eng).

Treatment with the Ayurvedic drug Nisha Kathakathi Kashayam, a potent hypoglycemic agent decreased the blood sugar of fasting diabetic rabbits. A mixture of Kashayam and Rasnarirandadi Kashayam used for the treatment of diabetic hypertension decreases the development of atherosclerosis in alloxan diabetic rabbits by significantly reducing the concentration of total cholesterol, triglyceride and free fatty acids in serum and tissues. NSL, New Delhi.

**9201-0250** Saraf, A.P., Joglekar, S.N., Naber, S.D., Mulay, M.S. (Department of Pharmacology, Grant Medical College Byculla, Bombay 400008, Maharastra, India) **Evaluation of protective effect of 1C 'Hepatogard' a compound herbal formulation in CCl4 induced liver damage.** *Antiseptic*, v. 88(10): p. 511-516, 1991 (11 ref, Eng).

Hepatoprotective activity of an indigenous formulation 'Hepatogard' tablet which contain extracts of *Picrorhiza kurroa, Andrographis paniculata, Phyllanthus amarus, Boerhaavia diffusa, Azadirachta indica*, Triphala, *Eclipta alba, Zingiber officinalis* and *Piper longum* was investigated in CCl4 induced liver damage in rats. CCl4 challenge significantly elevated hepatic enzyme markers, including the liver damage. Administration of 'Hepatogard' reversed this effect indicating the beneficial effects of the herbs. NSL, New Delhi.

**9201-0251** Satoh, K., Yasuda, I., Nagai, F. , Ushiyama, K., Akiyama, K., Kano, I.(Department of Toxicology, The Tokyo Metropolitan Research Laboratory of Public Health, 24-1, Hyakunincho 3 chome, Shinjuku-ku, Tokyo, Japan) **The effects of crude drugs using diuretic on horse kidney (Na++K+)-adenosine triphosphatase.** *Yakugaku Zasshi*, v. 111(2): p. 138-145, 1991 (17 ref, Jap, Eng).

Twenty one out of twenty three kinds of ethanol extracts of diuretic drugs inhibited the kidney (Na++K+)-ATPase activity. Among these drugs, atractylodis Lanceae Rhizoma. Atractylodis Rhizoma, Plantaginis Semen, Plantaginis Herba and Alismatis Rhizoma showed strong inhibitory effects on the kidney (Na++K+)-ATPase activity. The ethanol extracts of the rhizomes of *Atractylodes lancea* and *A.japonica* were examined with varying concentrations of ATP and ouabain. The mode of inhibition of these two extracts on the (Na++K+)-ATPase activity appeared to be uncompetitive with respect to ATP. The ethanol extract of *A.japonica* decreased the I50 for ouabain while *A.lancea* did not change the I50 for ouabain.

**9201-0252** Sethi, N., Nath, D., Singh, R.K.(Division of Toxicology, CDRI, Chattar Manzil Palace, P.O. Box 173, Lucknow 226 001, UP, India) **Abortifacient activity of an Ayurvedic compound Narikela Kshar in rats and its teratological evaluation in non-responses.** *Journal of Research in Ayurveda and Siddha*, v. 11(1-4): p. 72-77, 1990 (10 ref, Eng).

Narikela Kshar, which is a saline extract of *Cocos nucifera* fruits, when given orally to Charles Foster rats at a dose levels of 125 and 150 mg/kg body weight in aqueous solution from day 1-7 post-coitus showed 23.18 percent and 36.84 percent abortifacient activity, respectively.

**9201-0253** Sethi, N.(Division of Toxicology, Central Drug Research Institute, Lucknow 226001, UP, India) **Teratogenic activity of some indigenous medicinal plants in rats [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, 24-28 Nov. 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 131, 1991 (Eng).

The following medicinal plants were tested for antifertility activity showing an activity of 14-66 percent: *Abrus precatorius, Asparagus ascendens, Anacyclus pyrethrum, Paeonia officinalis, Mentha arvensis, Trigonella foenum-graecum, Rosa alba, Butea monosperma.* However, it was observed that in failure cases (inspite of feeding plant extracts) several congenital anomalies were observed in neonates. In India, a large number of people are exposed the plant extracts unknowingly. It is important that side effects of above mentioned plants be taken into consideration before prescribing them.

**9201-0254** Sethi, N., Sinha, N.(Division of Toxicology, Central Drug Research Institute, Lucknow 226 001, UP, India) **Toxicological data on arteether (an antischizontocidal, antimalarial compound) [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, November 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 243, 1991 (Eng).

Arteether an antischizontocidal antimalarial compound (from *Artemisia annua* was studied for its teratogenic potential in Charles Foster rats and rabbit (Oryctolagus cuniculus). The compound was administered through i.m. injection during the three sets of major organogenesis i.e. during day 7 to 9 post coital, 10 to 12 post coital and 13 to 15 post coital respectively at dose level 02.50 mg and 5.00 mg/kg by body weight in rats and during day 7 to 9 post coital, 11 to 13 post coital and 15 to 17 post coital respectively as the dose level of 1.95mg and 3.90mg/rabbit/day in rabbits. The compound did not reveal any significant effect on the rate of implantation, resorption, litter size and litter weight etc. Minor anomalies were seen, scattered in all the groups and were labelled as incidental.

**9201-0255** Shah, K.G., Baxi, A.J., Shukla, V.J., Dave, K.K., De, S. , Ravishanker, V.J.(Department of Chemistry, Saurashtra University, Rajkot 360 005, Gujarat, India) **Phytochemical studies and antioestrogenic activity of Butea frondosa flowers.** *Indian Journal of Pharmaceutical Sciences*, v. 52(6): p. 272-275, 1990 (10 ref, Eng).

Phytochemical investigations of the dried flowers of *B.frondosa* revealed the presence of seven flavones and flavonoid constituents including butrine and isobutrine and also four free amino acids. Purified alcoholic extract at lower dose level and etherial and water extracts at higher dose-level were found to exhibit significant antioestrogenic activity in immature mice, while ethyl acetate extract containing butrine and isobutrine exhibited poor activity. Significant inhibition of uterus weight gain, vaginal epithelium cornification and characteristic histological changes were observed.

**9201-0256** Shankar, A.(Medical Director, RA Hospital and Research Center Warisaliganj, Nawada, India) **'Liverite' as adjuvant in management of Koch's infection.** *Antiseptic*, v. 88(10): p. 517-520, 1991 (5 ref, Eng).

Liverite, a herbal drug in combination with anti TB drugs, irrespective of the drug regime and type of lesion, acts as a toxicity limiting, natural healing promoter and anabolic agent and ultimately minimise the cost and duration of treatment. Maintains the normal lung vitality and prevents hepatotoxicity and helps in regeneratio of affected liver cells. NSL, New Delhi.

**9201-0257** Sharma, I., Gusain, D., Dixit, V.P.(Department of Zoology, University of Rajasthan, Jaipur 302 004, Rajasthan, India) **Hypolipidaemic and antiatherosclerotic effects of plumbagin in rabbits.** *Indian Journal of Physiol-*

*ogy and Pharmacology*, v. 35(1): p. 10-14, 1991 (16 ref, Eng).

Plumbagin, isolated from the roots of *Plumbago zeylanica* when administered to hyperlipidaemic rats reduced serum cholesterol and LDL-chol by 53-86 percent and 61-91 percent respectively. It lowered cholesterol/phospholipid ratio by 45.8 percent and elevates the decreased HDL-cholesterol significantly. Further, plumbagin prenvented the accumulation of cholesterol and triglycerides in liver and aorta and regressed atheromatous plaques of thoracic and abdominal aorta. Plumbagin treated hyperlipidaemic subjects excreted more fecal cholesterol and phospholipids. NSL, New Delhi.

**9201-0258** Sharma, O.P., Dawra, R.K., Vaid, J.(Biochemistry and Disease Investigation Laboratories, Indian Veterinary Research Institute, Regional Station, Palampur 176 061, India) **Plant toxicosis- Interactions of Lantana, Pteridium and Ageratum spp. with biosphere [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 215, 1991 (Eng).

Plant toxicosis is the major cause of livestock morbidity. Plant toxicosis due to *Lantana* spp, *Pteridium* spp and *Ageratum* spp was discussed for impact on livestock rearing, chemistry of the toxins and allelochemicals, molecular mechanism of action and combat strategies.

**9201-0259** Shen, Z.F., Chen, Q.M., Liu, H.F., Xie, M.Z.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **The hypoglycemic effect of clausenacoumarin.** *Acta Pharmaceutica Sinica*, v. 24(5): p. 391-392, 1989 (5 ref, Eng, Chi).

Clausenacoumarin is a compound isolated from the leaves of *Clausena lansium*, which grows widely in South China. The studies show that clausenacoumarin can lower blood glucose level in normal mice and alloxan diabetic mice at 200 mg/kg.d for three days orally, and antagonize the elevation of blood glucose by injecting adrenaline in normal mice. No effect on blood lactic acid was observed.

**9201-0260** Shum, O.L., Chiu, K.W.*(Department of Biology, The Chinese University of Hong Kong, Shatin, NT Hong Kong) **Hypotensive action of Solanum melongena on normotensive rats.** *Phytotherapy Research*, v. 5(2): p. 76-81, 1991 (15 ref, Eng).

The cardiovascular action of *S.melongena* extract (SME) was investigated using in vivo and in vitro preparations. SME produced-dose-dependent hypotensive responses in normotensive albino rats. The duration of response was also dose dependent. In vitro studies indicated that the vasorelaxing and negative inotropic effect of SME might be implicated in the hypotensive response. The activities of the beta-adrenergic and acetylcholine receptors mediated by SME in turn promoted vasodilation of the resistant vessels and a reduction in cardiac activity respectively. It is also possible that the hypotensive effect of SME could be accounted for by its influence on the activity of the renin-angiotensin system.

**9201-0261** Singh, A., Singh, R.G., Singh, R.H., Mishra, N., Singh, N.*(Department of Pharmacology and Therapeutics, King George's Medical College, Lucknow 226003, UP, India) **An experimental evaluation of possible teratogenic potential in Boerhaavia diffusa in albino rats.** *Planta Medica*, v. 57(4): p. 315-316, 1991 (13 ref, Eng).

The ethanolic extract of *B.diffusa* (BDE) was administered daily in a dose of 250 mg/kg, body weight p.o., to pregnant albino female rats during the entire period of gestation. BDE was found to be devoid of any teratogenic effect as litter size and survival rate of foetuses were the same as for the normal control group and no foetal anomaly could be detected.

**9201-0262** Singh, N., Verma, P., Mishra, N.(Upgraded Department of Pharmacognosy and Therapeutics King George's Medical College, Lucknow 226003, UP, India) **Absence of teratogenic effect of Liv. 52 in albino rats.** *Journal of Biological and Chemical Research*, 9(December): p. 445-449, 1990 (7 ref, Eng).

The crude powder of Liv. 52 suspended in normal saline was administered orally to pregnant rats in a dose of 100 mg/100 g body weight during the entire period of gestation. This dose had no adverse effect on body weight, growth and size of the offspring as compared to controls. It could not induce any limb deformity in any of the offspring of the treated animals. There was no significant difference in fertility index, lactation index, gestation index, live birth index and teratogenicity index in treated animals. Thus Liv 52 was found to be devoid of any teratogenicity in rats. NSL, New Delhi.

**9201-0263** Singh, N., Misra, N., Srivastava, A.K., Dixit, K.S., Gupta, G.P.(Department of Pharmacology & Therapeutics, KG Medical College, Lucknow 226003, UP, India) **Effect of antistress plants on biochemical changes during stress reaction.** *Indian Journal of Pharmacology*, v. 23(3): p. 137-142 , 1991 (16 ref, Eng).

Effect of alcoholic extracts of antistress plants like *Eleutherococcus senticosus* and *Ocimum sanctum* was studied on the changes in central neurotransmitter levels and

enzyme activity in the brain, induced by stressors. Both the drugs prevented decrease in adrenalin, noradrenalin, monoamine oxidase and 5-hydroxytryplamine in increase in dopamine was facilitated. Prevention and facilitation of stressed animals. The increase in dopamine was facilitated Prevention and facilitation of changes in brain neurotransmitters and enzymes by the antistress plants appear to enhance the stressadaptation phenomenon for better coping of the organism duringstressful situations. NSL, New Delhi.

**9201-0264** Singh, P.D.A., West, M.E.(Department of Pharmacology, University of the West Indies, Mona Campus, Kingston 7, Jamaica) **Pharmacological investigations of sticky viscome extract (Cleome viscosa L.) in rats, mice and guinea-pigs.** *Phytotherapy Research*, v. 5(2): p. 82-84, 1991 (13 ref, Eng).

The aqueous extract of seeds of *C.viscosa* (Syn. *Polanisia viscosa*) has been studied for its pharmacological activities. It was found to be nontoxic when dosed orally and intraperitoneally to rats and mice. The extract showed significant analgesic activity in mice and local anaesthetic activity in guinea-pigs. It potentiated the barbiturate sleeping time in rats and had a mild laxative effect, increasing the passage of soft faeces. It failed to protect against convulsions induced by picrotoxin in rats. The results are discussed in terms of the alleged uses of the plant in folklore medicine.

**9201-0265** Singla, A.K., Pathak, K.(Department of Pharmaceutical Sciences, Panjab University, Chandigarh-160014, India) **Topical antiinflammatory effects of Euphorbia prostrata on carrageenan-induced footpad oedema in mice.** *Journal of Ethnopharmacology*, v. 29(3): p. 291-294 , 1990 (4 ref, Eng).

The ethyl acetate extract and a fraction, KSE-23, isolated chromatographically from the ethyl acetate extract of whole plant of *E.prostrata*, showed significant antiinflammatory activity when topically applied in a murine model of carrageenan footpad oedema. KSE-23 was found to be more potent than indomethacin given in the same manner. NML, New Delhi.

**9201-0266** Srivastava, S., Pillai, K.K. , Husain, Z., Qadry, J.S., Khan, M.S.Y.(Department of Pharmacology, Faculty of Pharmacy, Jamia Hamdard, New Delhi 110 062, India) **Pharmacological profile of ginseng on isoproterenol induced myocardial necrosis. [Abstract of paper presented at 2nd Congress of Toxicology in Developing Countries, held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 234-235, 1991 (Eng).

Red ginseng(RG), the root of *Panax ginseng* has been widely prescribed in Chinese medicine in general practice. Traditionally ginseng containing herbal medicines have been considered to be effective in the management of stress ulcers, anxiety necrosis and radiation induced injury. The present study showed cardio-protective effect of *Panax ginseng* on isoproterenol induced myocardial necrosis in animal models. This was confirmed by histopatholgical and biochemical estimations such as CPK, LDH and SGOT levels. The details of the results were presented.

**9201-0267** Takahashi, S., Uekane, A., Otsuka, K., Shigenobu, K. (Department of Pharmacology, Toho University, School of Pharmaceutical Sciences, Miyama 2-2-1, Funabashi, Chiba 274, Japan) **Sedative hypnotic action of pala papua, Myristica argentea, in mice.** *Phytotherapy Research*, v. 5(2): p. 72-75, 1991 (14 ref, Eng).

An aqueous extract of the seed of *M.argentea* depressed motor activity and caffeine-induced excitement, and prolonged spontaneous and pentobarbital-induced sleep in mice; it also inhibited brief tonic spasm caused by pentobarbital before hypnosis. These actions are discussed by comparing them with those of nutmeg essential oil, the seed essential oil of *M.fragrans*.

**9201-0268** Tandon, J.S., Srivastava, V., Guru, P.Y.(Division of Medicinal Chemistry and Parasitology, Central Drug Research Institute, Lucknow 226 001, UP, India) **Iridoids: A new class of leishmanicidal agents from Nyctanthes arbortristis.** *Journal of Natural Products*, v. 54(4): p. 1102-1104 , 1991 (9 ref, Eng).

Iridoid glucosides (arbortristosides A, B, C and 6beta-hydroxyloganin isolated from the traditional plant *N.arbortristis* show antileishmanial activity in both in vitro (against amastrigotes in macrophage cultures) and in vivo (in hamsters) test systems.

**9201-0269** Tennekoon, K.H., Karunanayake, E.H. , Mahindaratna, M.P.D.(Department of Physiology and Biochemistry, Faculty of Medicine, Colombo 8, Sri Lanka) **Evaluation of the galactagoguic activity of Asparagus falcatus.** *Ceylon Journal of Medical Science*, v. 30(2): p. 63-67 , 1987 (Recd. 1991, 5 ref, Eng).

Aqueous, methanol, methylene chloride and protein extracts of roots of *A falcatus* were administered orally to lactating Sprague Dawley rats for one week from the fifth day after the delivery. The weight gain of the litter was compared with control groups in order to evaluate the galactagoguic activity of the extracts. No significant increase in the percentage weight gain of the litter was observed in the treatment groups following administration of any of

theseextracts suggesting an absence of galactagoguic activity in the extracts at the doses administered.

**9201-0270** Toda, S., Kimura, M., Ohnishi, M.(Department of Pharmaceutical Science, Institute of Medical Science, Kan Sai Shinkyu Medical College, 990 Ogaito, Kumatori, Sennan, Osaka 590-04, Japan) **Induction of neutrophil accumulation by the Chinese herbal medicine "Ninjin-youei-to".** *Journal of Ethnopharmacology*, v. 29(1): p. 105-109 , 1990 (11 ref, Eng).

"Ninjin-youei-to" (NT) [a Chinese herbal medicine used for the treatment of weakened physical strength in asthenic persons] has been categorized as a BRM much like lentian, since the ratio of neutrophil accumulation (inperitoneal exudates of mice) by extract of NT was similar to that of lentian. Composition of the drug has also been described. NML, New Delhi.

**9201-0271** Toda, S., Kimura, M., Ohnishi, M.(Department of Pharmaceutical Sciences, Institute of Medical Science, Kansai Shinkyu College, 990 Ogaito, Sennan, Osaka 590-04, Japan) **Induction of neutrophil accumulation by Chinese herbal medicines "Hochu-etsuki-to" and "Jyuzen-daiho-to".** *Journal of Ethnopharmacology*, v. 30(1): p. 91-95 , 1990 (8 ref, Eng).

"Hochu-etsuki-to" (HT) and "Jyuzen-daiho-to" (JT) are Chinese herbal medicines that have been used for the treatment of weakened physical strength and asthenic persons. Intraperitoneal injection of boiled water extracts in mice of HT and JT were found to induce a high accumulation of neutrophils 6h after injection in a manner similar to that seen with the biological response modifier lentian. The neutrophil accumulation by HT and JT increased dose-dependently. NML, New Delhi.

**9201-0272** Tosi, B., Dall'Olio, G., Bruni, A.*(nstitute of Botany, University of Ferrara, Corso Porta Mare 2, I-44100 Ferrara, Italy) **Screening for toxic thiophene compounds from crude drugs of the family Compositae used in northern Italy.** *Phytotherapy Research*, v. 5(2): p. 59-62, 1991 (8 ref, Eng).

The presence and distribution of biosynthetically related di- and terthiophenes from 25 crude drugs derived from some genera of the family Compositae were investigated by high performance thin layer chromatography (HPTLC)densitometry. A significant thiophene content was found in *Tagetes patula, Achillea millefolium, Achillea millefolium var tanacetifolia, Arnica montana, Artemisia absinthium, Artemisia dracunculus, Artemisia pontica, Centaurea cyanus, Chrysanthemum cinerariaefolium, Doronicum pardaliandres, Helianthus annuus* and *Tanacetum vulgare*. The results of this study indicate that commercial crude drugs from the compositae contain amounts of photoactive thiophenes which are potentially toxic.

**9201-0273** Tripathi, G.S., Tripathi, Y.B.*(Biochemistry Section, Department of Medicinal Chemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, UP, India) **Choleretic action of andrographolide obtained from Andrographis paniculata in rats.** *Phytotherapy Research*, v. 5(4): p. 176-178, 1991 (12 ref, Eng).

Andrographolide, a diterpene, isolated from *A.paniculata* exhibited a strong choleratic action when administered intraperitoneally to albino rats. This substance induced an increase in bile flow together with a change in the physical properties of the bile secretion.

**9201-0274** Tripathi, S.C., Patnaik, G.K. , Dhawan, B.N.(ICMR Centre of Advanced Pharmacological Research on Traditional Remedies, Central Drugs Research Institute, Lucknow 226001, UP, India) **Hepatoprotective activity of Picroliv against alcohol carbon tetrachloride induced damage in rats.** *Indian Journal of Pharmacology*, v. 23(3): p. 143-148 , 1991 (10 ref, Eng).

The active constituent of Picroliv is *Picrorhiza kurroa*. Picroliv at doses of 3,6 and 12 mg/kg/day p.o. for 7 days showed a significant dose dependent hepatoprotective activity as evidenced by lowering of the elevated levels of liver enzymes and bilirubin in the serum. The depleted glycogen content of liver was also restored significantly. The activity of Picroliv was compared with that of silymarin a known hepatoprotective agent. NSL, New Delhi.

**9201-0275** Udupa, S.L., Udupa, A.L., Kulkarni, D.R.(Department of Biochemistry, Kasturba Medical College, Manipal 576119, Karnataka, India) **Influence of Tridax procumbens on lysyl oxidase activity and wound healing.** *Planta Medica*, v. 57(4): p. 325-327, 1991 (16 ref, Eng).

The effects of an indigenous drug, *T.procumbens*, on developing granulation tissue in rats were studied. Subcutaneously harvested granuloma tissue formed on dead space wound was removed at 4 day intervals upto 32 days of wounding. Lysyl oxidase activity, protein content, specific activity, and breaking strength were all increased in drug-treated animals as compared to controls. A fall in the lysyl oxidase activity was observed in drug-treated animals after day 8. The drug may be having a dual role: one a stimulatory (direct) effect in the initial phase of wound healing and the other a depressant(indirect) effect in the later stage.

**9201-0276** Unander, D.W., Blumberg, B.S.(Division of Population Science, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111, USA) **In vitro activity of Phyllanthus (Euphorbiaceae) species against the DNA polymerase of hepatitis viruses: Effects of growing environment and inter- and intra-specific differences.** *Economic Botany*, v. 45(2): p. 225-242, 1991 (43 ref, Eng).

. The objectives of the experiments were to evaluate the in vitro inhibition of viral DNA polymerase (DNAp) among (1) different species of Phyllanthus , (2) within the most promising species; and (3) to evaluate differences in activity that might be correlated with environmental effects. The ultimate goal of studies is to develop a system for producing high quality plants for large scale extraction. Inhibitory activity varied significantly among species. In *P.urinaria* there were significant differences among intraspecific accessions. Accessions of *P.amarus* from various locations, did not differ significantly. Experiments with one seedlot showed highly significant plant-to-plant differences in antiviral activity, but clear-cut heritable differences were not established among progeny of the plants at extremes in the distribution. Differences in general soil fertility, soil moisture, pH or Ca generally did not significantly affect inhibition of viral DNAp but temperature differences did. Except for temperature, the detectable environmental effects were generally less than the size of the genetic differences among species. *P.amarus* was successfully grown as a row crop with inputs of fertilizer and irrigation and showed no loss of activity when compared to samples from the wild. Thus, once an accession of *Phyllanthus* with potent inhibition of viral DNAp is identified, it can be grown under cultivated conditions for extraction without a loss of activity.

**9201-0277** Ustunes, L., Ozer, A., Lackeman, G.M., Corthout, J., Pieters, L.A.C., Baeten, W., Herman, A.G., Claeys, M., Vlietinck, A.J. (Department of Pharmacology, Faculty of Pharmacy, Ege University, 35100 Bornova, izmir, Turkey) **Chemical characterization and pharmacological activity of nazlinin, a novel indole alkaloid from Nitraria schoberi.** *Journal of Natural Products*, v. 54(4): p. 959-966 , 1991 (21 ref, Eng).

Nazlinin, a novel indole alkaloid with serotonergic activity, has been isolated together with serotonin and tryptamine from *N.schoberi* using a bioassay-guided fractionation, and its structure has been confirmed by eims and NMR techniques. The contractile and relaxing effects of nazlinin on blood vessels are compared with those of the structurally related serotonin.

**9201-0278** Van hecke, E., Hindryckx, P., Geuns, J.M.C., Devriese, E.(Department of Dermatology, University Hospital, De Pintelaan 185, B-9000 Gent, Belgium) **Airborne contact dermatitis from coleus in a housewife.** *Contact Dermatitis*, v. 25(2): p. 128-129, 1991 (4 ref, Eng).

Case of a 38-year old woman who exhibited an airborne contact dermatitis from *Coleus* has been described. The dermatitis resolved after discarding the plants from her residence. She gave strongly positive reactions with redness, edema and vesicles on patch testing with coleon O, a purified product extracted from the coleus plant.

**9201-0279** Visen, P.K.S., Shukla, B., Patnaik, G.K., Ramesh Chandra , Singh, V., Kapoor, N.K., Dhawan, B.N.*(ICMR Centre for Advanced Pharmacological Research on Selected Traditional remedies, Central Drug Research Institute, Post Box No. 173, Lucknow 226 001, UP, India) **Hepatoprotective activity of picroliv isolated from Picrorhiza kurrooa against thioacetamide toxicity on rat hepatocytes.** *Phytotherapy Research*, v. 5(5): p. 224-227, 1991 (15 ref, Eng).

Picroliv, an iridoid glycoside mixture from the root and rhizome of *Picrorhiza kurrooa*, showed dose-dependent protective activity on isolated hepatocytes (ex vivo) against thioacetamide-induced hepatic damage in the rat. It enhanced the percentage of viable hepatic cells. Picroliv also antagonized the changes in the enzymes GOT, GPT and alkaline phosphatase produced by thioacetamide both in the isolated hepatocyte suspension as well as in serum. It was found to be more potent than silymarin, a known hepatoprotective agent.

**9201-0280** Wang, B.X., Yang, M., Jin, Y.L. , Cui, Z.Y., Wang, Y. (Department of Pharmacology, Academy of Traditional Chinese Medicine and Materia Medica of Jilin Province, Changchun 130 021, China) **Studies on the hypoglycemic effect of ginseng polypeptide.** *Acta Pharmaceutica Sinica*, v. 25(6): p. 401-405, 1990 (5 ref, Eng , Chi).

Ginseng polypeptide (GPP) isolated from the root of *Panax ginseng* was demonstrated to decrease the levels of blood sugar and liver glycogen when injected intravenously to rats at doses of 50 to 200 mg/kg without affecting total blood lipids. When mice were injected subcutaneously daily at doses of 50 and 100 mg/kg for 7 successive days, GPP was also found to decrease blood glucose and liver glycogen and various experemental hyperglycemias induced by injection of adrenaline, glucose and alloxan. However, GPP exhibited inhibiting effect on the glycogen enhancement induced by glucose, but strengthening effect on the glycogen decrease induced by adrenaline. When the levels of blood total lipid and liver glycogen were increased by alloxan, GPP was shown to inhibit these changes except its

lowering of blood sugar. The toxicity of GPP is very low, its LD50 for mice was found to be 1.62+- 0.130 g/kg.

**9201-0281** Wang, C.M., Ohta, S., Shinoda, M.(Faculty of Pharmaceutical Sciences, Hoshi University, 2-4-41, Ebara, Shinagawa-ku, Tokyo, 142, Japan) **Studies on chemical protectors against radiation. XXXIV. Survival effects of aqueous extracts of various Chinese traditional medicines on radiation injury.** *Yakugaku Zasshi*, v. 111(6): p. 322-328, 1991 (12 ref, Jap, Eng).

Sixty kinds of Chinese traditional medicines were tested for their survival effects against the lethal effect of X-ray irradiation in mice. Of these, 15 showed significant survival effect lyip route before irrgulation. On the other hand, the survival effects of 25 medicines including the above mentioned 15 medicines were investigated by the oral administration at various times before or after the irradiation. Only Keigai-rengyo-to and Bukuryo-in showed significant survival effect when administered 2 h before the irradiation.

**9201-0282** Wang, J.Z., Mao, X.J., Ito, H. , Shimura, K.(Department of Pharmacology, Mie University School of Medicine, Tsu, Mie 514, Japan) **Immunomodulatory activity of polysaccharide from Acanthopanax obovatus roots.** *Planta Medica*, v. 57(4): p. 335-336, 1991 (7 ref, Eng).

The effects of the *A.obovatus* polysaccharide (AOPS) as well as its combination with cyclophosphamide (CY) or prednisolone on immune responses were investigated in mice. AOPS (250 mg/kg i.p. x 5) increased the spleen weight and the number of spleen cells, and augmented the phagocytosis of peritoneal macrophages both in normal mice and in immunosuppressed mice. In a haemagglutinin assay AOPS increased the production of specific antibodies and antagonized the suppressive effect of CY. AOPS not only enhanced the degree of in vitro spleen cell-mediated red blood cells (SRBC) hemolysis (quantitative hemolysis of SRBC) but also restored the suppressive effect of CY completely.

**9201-0283** Wang, N.G., Guan, M.Z., Lei, H.P.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **Studies on anti-implantation and hormone activity of yuehchukene, an alkaloid isolated from the root of Murraya paniculata.** *Acta Pharmaceutica Sinica*, v. 25(2): p. 85-89, 1990 (Chi, Eng).

Oral or subcutaneous administration of yuehchukene to female mice at the dosage of 2 or 4 mg/kg d on day 1 to 3 of gestation resulted in 100 percent anti-implantation effect. However, yuehchukene at 4 mg/kg.d was found to have no anti-implantation effect in hamsters. Allen-Doisy test showed that yuehchukene had obvious estrogenic activity.

**9201-0284** Wu, T.S., Lin, Y.M., Haruna, M. , Pan, D.J., Shingu, T., Chen, Y.P. , Hsu, H.Y., Nakano, T., Lee, K.H.*(Natural Products Laboratory, Division of Medicinal Chemistry and Natural Products, School of Pharmacy, University of North Carolina, Chapel Hill, North Carolina 27599, USA) **Antitumor agents, 119. Kansuiphorins A and B, two novel antileukemic diterpene esters from Euphorbia kansui.** *Journal of Natural Products*, v. 54(3): p. 823-829 , 1991 (15 ref, Eng).

The extract of the roots of *E.kansui*, which has been widely used in Chinese folk medicine for the treatment of cancer, demonstrated antileukemic activity against the P-388 lymphocytic leukemia in mice. Bioassay-directed fractionation of the active extract led to the isolation and characterization of two novel antileukemic diterpene esters, kansuiphorin A {13-hydroxyingenol-3-(2,3-dimethyl-butanoate)-13-dodecanoate-20-hexadec anoate} and kansuiphorin B {6,7-epoxy-13-hydroxyingenol-3-(2,3-dimethylbutanoate)-13-dodecanoate- 20-hexadecanoate}, whose structures were established from spectral evidence and chemical transformation. Kansuiphorins A and B demonstrated potent antileukemic activity. The selectivity of kansuiphorin A, which inhibits the growth of particular cell types within the disease-oriented human cancer cell line panels, is discussed.

**9201-0285** Xu, C.X., Lin, L., Sun, R.H. , Liu, X., Han, R. (Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **Anti-tumor effect of hernandezine and other components extracted from Thalictrum glandulosissium.** *Acta Pharmaceutica Sinica*, v. 25(5): p. 330-335, 1990 (11 ref, Chi, Eng).

The total alkaloids of *T.glandulosissimum* and its main component hernandezine were found to be effective for treatment of mice bearing P388 leukemia, S180 ascites and C26 colon cancer. Although hernandezine inhibited the growth of mouse L1210 cells and human oral cancer KB cells *in vitro* markedly, its inhibitory effect on normal hemopoietic progenitor cells (CFU-GM) in mice was relatively low. Preliminary results showed that hernandezine blocked cell-cycle transfer from G1 to S phase, and its cytocidal action might be cell cycle specific. In addition, two other components, thalidezine and isothalidezine, isolated from the same plant exerted similar inhibitory effect on L1210 cells.

**9201-0286** Xu, L.N., Yu, W.G., Tian, J.Y. , Liu, Q.Y.(Department of Pharmacology, Institute of Materia Medica Chinese Academy of Medical Sciences, Beijing 100 050, China) **Effect of sodium ferulate on arachidonic**

**acid metabolism.** *Acta Pharmaceutica Sinica*, v. 25(6): p. 412-416, 1990 (11 ref, Chi, Eng).

Sodium ferulate (SF) is one of the antiplatelet ingredients in radix *Angelica sinensis* which inhibited the generation of rabbit platelet thromboxane B2 in a dose dependent manner (reduced by 16.7-93.8 percent) and the IC50 was shown to be 0.762 mmol/L. At the same time the formation of PGE2 and PGF2 alpha was also reduced significantly by SF. SF also suppressed aortic tissue 6-keto-PGF/alpha generation in rabbits. At the same concentrations the inhibitory effect of SF on platelet TXB2 formation was greater than that on aortic tissue 6-keto-PGF1 alpha generation. These results indicate that the cyclooxygenase activity.may be inhibited by SF.

**9201-0287** Yamahara, J., Kobayashi, G. , Iwamoto, M., Chisaka, T., Fujimura, H. , Takaishi, Y., Yoshida, M., Tomimatou, T. , Tamai, Y. (Kyoto Pharmaceutical University, Misasagi Yamashina-ku, Kyoto 607, Japan) **Vasodilatory active principles of Sophora flavescens root.** *Journal of Ethnopharmacology*, v. 29(1): p. 79-85 , 1990 (11 ref, Eng).

Flavanones vexibinol and kurarinone were isolated from an ethyl acetate extract of *S.flavescens* roots and assayed using isolated rabbit and rat thoracic aorta helical strips. These compounds inhibited KCl and norepinephrine maximum contractions in a concentration-dependent manner in the rat but only KCl contractions in the rabbit. Vexibinol and kurarinone weakly inhibited histamine- and serotonin-induced contractions in the rabbit. NML, New Delhi.

**9201-0288** Yamahara, J., Mochizuki, M. , Fujimura, H., Takaishi, Y. , Yoshida, M. , Tomimatsu, T., Tamai, Y.(Kyoto Pharmaceutical University, Misasagi Yamashima-ku, Kyoto 607, Japan) **Antiulcer action of Sophora flavescens root and an active constituent.1.** *Journal of Ethnopharmacology*, v. 29(2): p. 173-177 , 1990 (11 ref, Eng).

The effect of a methanol extract of *S.flavescens* root was examined on gastric ulcers induced in rats by HCl/ethanol in order to substantiate its reputed protective properties. Oral doses of 1 g/kg completely suppressed ulceration. Results suggest that oral administration of 50 mg/kg of vexibinol, a flavanol found in the extract, inhibited ulceration more effectively than spizofurone at 100 mg/kg. NML, New Delhi.

**9201-0289** Yamahara, J., Matsuda, H., Huang, Q., Li, Y., Fujimura, H.(Kyoto Pharmaceutical University, Misasagi Yamashina-Ku, Kyoto 607, Japan) **Intestinal motility enhancing effect of Atractylodes lancea rhizome.** *Journal of Ethnopharmacology*, v. 29(3): p. 341-344 , 1990 (5 ref, Eng).

The acetone extract of the rhizomes of *A.lancea* significantly enhanced charcoal transport in mice beta-Endesmol and hinesol, isolated from the acetone extract also clearly enhenced intestinal charcoal transport in mice, (hinesol appeared to be more effective than beta-eudesmol). The findings while giving clue for the development of new types of intestinal motility enhancing drugs, also substantiate the medicinal use of *A.lancea*. NML, New Delhi.

**9201-0290** Yedukondala, R.A., Prasad, Y.S.S.V.V. , Rao, K.M., Rao, K.S.(Centre for Experimental Medical Sciences, Siddharta Medical College, Vijayawada-520008, India) **Effect of coffee and tobacco smoke on serum lipid profile and some drug responses in experimental animals [No.P.1-134, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, November 24-28, 1991].** *International Journal of Toxicoloy, Occupational and Environmental Health*, v. 1(1): p. 249-250, 1991 (Eng).

Many experimetnal studies proved the involvement of coffee and tobacco on the occurrence of coronary heart diseases and other health hazards. In the present study an attempt has been made to find out the possible in vivo and in vitro interactions to some standard drugs and their effects on serum lipid profile. Interestingly, tobacco smoke (1g/day) upto 300 days exposure in dogs did not produce significant change in serum cholesterol when compared to self control value (150+- 25 mg/dl) whereas HDL was steadily increased upto 198 days (44+-55 to 110+-17 mg/dl). However, high expesure to tobacco smoke (10g/day) showed a significant increase of HDL (77+-10mg/dl) and decrease of VLDL (2+-0.5mg/dl) in 30 days exposure. The increase in cholesterol level with increase in coffee consumption was also recorded.

**9201-0291** Zafra-Polo, M.C., Blazquez, M.A.(Departament de Farmacologia i Farmacotecnia (Farmacognosia y Farmacodinamia), Facultat de Farmacia, Blasco Ibanez, 13, 46010 Valencia, Spain) **Antiinflammatory activity of sesquiterpene lactones from Artemisia barrelieri in rats.** *Phytotherapy Research*, v. 5(2): p. 91-93, 1991 (9 ref, Eng).

Three eudesmanolides, barrelierin, artemalin and barrelin, isolated from aerial parts of *A.barrelieri* and desoxyvulgarin obtained from barrelin by reduction with zinc and acetic acid, reduced carrageenan-induced rat paw oedema. The results show that the alpha-methylene-gamma-lactone group is not essential for the antiinflammatory effect, but variations in the molecular

structure of these sesquiterpene lactones may enhance or diminish the antiinflammatory effect.

**9201-0292** Zama, M.M.S., Singh, H.P., Amreesh Kumar(Department of Surgery and Radiology, College of Veterinary Sciences, Pantnagar 236145, Nainital, UP, India) **Comparative studies on Adhatoda vasica and pancreatic tissue extract on wound healing in buffaloes.** *Indian Veterinary Journal*, v. 68(9): p. 864-866, 1991 (10 ref, Eng).

Ninety-six cutaneous deep wounds asceptically prepared in buffalo calves were treated with an alcoholic extract ointment of *A.vasica*, pancreatic tissue extract and normal saline. The healing of the wounds was evaluated by clinical and biochemical examinations. The observations revealed that the rate of healing was higher in *A.vasica* treated wounds followed by pancreatic tissue extract.

**9201-0293** Zhang, J.F., Yan, C.D., Zhang, Y.Q. , Gao, W.Z., Zhai, X.M.*(Department of Physiology, Xuzhou Medical College, Xuzhou 221 002, China) **Effect of Scopolia drugs on the gastric mucosal lesion in rats.** *Acta Pharmaceutica Sinica*, v. 25(2): p. 90-94, 1990 (10 ref, Chi, Eng).

*Scopolia* drugs(scopolamine, anisodine and anisodamine) were found to be effective anti-ulcer agents in experimental gastric ulcer models rats in a dose dependent manner. Biochemical analysis of gastric juice and blood showed that *Scopolia* drugs could inhibit gastric acid secretion and pepsin activity, increase gastric barrier mucus and concentration of serum gastrin, suggesting that these actions may contribute to its anti-ulcer effect.

**9201-0294** Zhang, L.X., Yu, F.K., Zheng, Q.Y. , Fang, Z., Pan, D.J. (Department of Pharmacology, Institute of Materia Medica, Shanghai Medical University, Shanghai 200032, China) **Immunosuppressive and antiinflammatory activities of tripterine.** *Acta Pharmaceutica Sinica*, v. 25(8): p. 573-577, 1990 (10 ref, Chi, Eng).

Tripterine, the active components isolated from *Tripterygium wilfordii* was shown to inhibit the antibody response of mouse splenocytes to SRBC both in vitro and in vivo either by primary or secondary stimulation. Ttripterine was also found to significantly inhibit cotton pellet induced granuloma growth in rats and depress the delayed hypersensitive reaction of mouse skin to dinitrochloro- benzene. Besides, it also increased the sleeping time of mouse induced by pentobarbital sodium. From the results, it appears that tripterine might be useful in the treatment of inflammatory diseases of autoimmune diseases.

**9201-0295** Zhang, S.S., Li, Z.H., Liu, S.F.(Department of Pharmacology, Neimenggu Medical College, Huhehaote 010 059, China) **Relationship between the positive inotropic action of matrine and extracellular calcium.** *Acta Pharmaceutica Sinica*, v. 25(8): p. 637-639, 1990 (5 ref, Chi, Eng).

Matrine (Ma) was extracted from the seed and leaves of *Ssophora alopecuroides*. Ma showed positive inotropic actions in isolated guinea pig left atrium and rat vas deferens under electric stimulation. The positive inotropic actions were markedly inhibited by verapamil (1 micro mol/L). Isolated rat vas deferens under the action of Ma showed rhythmic contraction. High K-ions (KC1 40 mmol/L) augmented the frequency of rhythmic contraction induced by Ma; conversely, Ma also augment the increased tension produced by high K-ions. These results suggest that, the positive inotropic actions of Ma is relevant to its activation of Ca-ions channels.

**9201-0296** Zhao, G., Jung, J.H., Smith, D.L. , Wood, K.V., McLaughlin, J.L.(Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana 47907, USA) **Cytotoxic clerodane diterpenes from Polyalthia longifolia.** *Planta Medica*, v. 57(4): p. 380-383, 1991 (24 ref, Eng).

Bioassay-directed chemical investigation of the stem bark of *P.longifolia* has led to a novel clerodane diterpene, 16-oxo-cleroda-3,13(14)Z-dien-15-oic acid which was named polyalthialdoic acid and the previously known related diterpenes, kolavenic acid which has not been reported as a constituent of this plant, and 16alpha-hydroxy-cleroda-3,13(14)Z-dien-15,16-olide. Their structures were identified by chemical and spectroscopic methods All three compounds were significantly bioactive in the brine shrimp bioassay; they strongly inhibited the growth of crown gall tumors on potato discs; and they were cytotoxic in three human tumor cell lines. Polyalthialdoic acid was the most active compound.

**9201-0297** Zhao, J.F., Kiyohara, H., Sun, X.B. , Matsumoto, T., Cyong, J.C., Yamada, H.* , Takemoto, N., Kawamura, H.(Oriental Medicine Research Center of the Kitasato Institute, 5-9-1 Shirokane, Minato-ku 108, Tokyo, Japan) **In vitro immunostimulating polysaccharide fractions from roots of Glycyrrhiza uralensis.** *Phytotherapy Research*, v. 5(5): p. 206-210, 1991 (17 ref, Eng).

The water soluble anticomplementary, mitogenic and immune complex (IC) clearance enhancing crude polysaccharide fraction, prepared from the roots of *G.uralensis*, was fractionated into five polysaccharide fractions. A strongly acidic polysaccharide fraction (GR-2), which has the most potent immunostimulating fraction, contained about 60 percent galacturonic acid with arabinose, galactose and glucose

as the major neutral sugars, and a small quantity of protein. Pronase digestion did not alter the anticomplementary and mitogenic activities, however, endo-alpha-(1 to 4)-polygalacturonase digestion reduced both activities. The IC clearance activity of GR-2 was slightly decreased by pronase digestion but not by endo-polygalacturonase digestion. GR-2 was further purified by ion exchange chromatography and gave GR-2IIa, GR-2IIb and GR-2IIc. GR-2IIa and IIb are mainly composed of rhamnose, arabinose, galactose and galacturonic acid and showed only moderate anticomplementary activity. GR-2IIc consisted of rhamnose, fucose, arabinose, mannose, glucose, galactose, glucuronic acid and galacturonic acid as the component sugars with a small quantity of protein. GR-2IIc had the most potent anticomplementary, mitogenic and IC clearance activities.

**9201-0298** Zhao, K.C., Xuan, W.Y., Zhao, Y. , Song, Z.Y.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **The pharmacokinetics of a transdermal preparation of artesunate in mice and rabbits.** *Acta Pharmaceutica Sinica*, v. 24(11): p. 813-816 , 1989 (7 ref, Chi, Eng).

Transdermal preparation of artesunate isolated from *Artemisia annua* when applied onto a fixed area of the shaved skin of mice and rabbits, it was found to be absorbed from the skin. Serum concentration of the drug was determined by a method of radioimmunoassay. Peak serum concentration of 1.8 micro g/ml reached at about 2 h when a dose of 25 mg/kg was given to rabbits. For mice, peak serum concentrations of 2.05 and 7.11 micro g/ml were attained in about 0.5 h after doses of 31.3 and 71.4 mg/kg, respectively, while at a dose of 6.7 mg/kg peal level of 0.82 micro g/ml (a concentration more than 5000 times the IC50 of artesunate in *in vitro* tests on Plasmodium berghei for antimalarial activity) was attained at about 4 h after application of the drug. The half-lives of the drug were found to be more than 2 h for both mice and rabbits.

**9201-0299** Zheng, Y.L., Xu, Y., Lin, J.F.(Fujian Institute of Medical Science, Fuzhou 350 001, China) **Immunosuppresive effects of wilfortrine and euonine.** *Acta Pharmaceutica Sinica*, v. 24(8): p. 568-572, 1989 (12 ref, Eng, Chi).

Wifortrine and euonine isolated from *Tripterygium wilfordii* showed marked depressant effects on humoral mediated immunity using the hemolysin reaction as indices. Wilfortrine (160 mg/kg.dx9d ip) exhibited a depressant effect on graft va host reaction, but wilfortrine (80 mg/kg.dx9d ip) showed no definite effect. Euonine (80 mg/(kg.d)x10d ip) showed marked suppressant effects on DNCB induced delayed hypersensitivity reaction on skin in mice. Wilfortrine and euonine (80 mg/(kg.d)x4 d ip) significantly decreased the clearnce rate of charcoal particles and the weights of spleen and thymus.

## Antimicrobial Activity

**9201-0300** Afifi, F.U., Al-Khalil, S.* , Abdul-Haq, B.K., Mahasneh, A., Al-Eisawi, D.M., Sharaf, M., Wong, L.K., Schiff, P.L.(Jr.)(Faculty of Pharmacy, University of Jordan, Amman, Jordan) **Antifungal flavonoids from Varthemia iphionoides.** *Phytotherapy Research*, v. 5(4): p. 173-175, 1991 (17 ref, Eng).

Four flavonoids 5,7,4'-trihydroxy-3,3'-dimethoxyflavone (3',3'-di-O-methylquercetin)(1), 5,4'-dihydroxy-3,7-dimethoxylfavone (kumatakenin) (2), 5,4'-dihydroxy-6,7,8,-trimethoxyflavone (xanthomicrol) (3) and 5,7,4'-trihydroxy-3,6,3'-trimethoxyflavone (jaceidine) (4) were isolated and identified from the Jordanian *Varthemia iphionoides*. The aqueous alkaline solution of these compounds showed little or no activity against the bacteria Staphylococcus aureus, Bacillus cereus and Salmonella typhimurium. Compound 2 was active against the fungi Fusarium solani and Candida tropicalis while compounds 1 and 3 were much more active against F.solani, Aspergillus parasiticus and C.tropicalis.

**9201-0301** Akhtar, M.S., Javed, I.(Department of Physiology and Pharmacology, University of Agriculture, Faisalabad, Pakistan) **Efficacy of Nigella sativa Linn. seeds against Moniezia infection in sheep.** *Indian Veterinary Journal*, v. 68(8): p. 726-729, 1991 (8 ref, Eng).

Anticestodal activity of *N.sativa* (Kalonji) was evaluated in sheep suffering from Moniezia expensa. Eggs per gram (EPG) counts were determined in faeces after treatment with powdered seeds of *N.sativa* in 1.5, 2 and 2.5 g/kg body weight dosage and also with its extracts in water and ethanol. Water extract of doses equivalent to 1.5, 2 and 2.5 g/kg of drug induced a significant reduction (P less than 0.05) of EPG on post-treatment day 15. However 2.5 g/kg of drug power as well as its ethanol extract reflected more pronounced results on EPG after treatment for days 15. The results are equipolent with that of Niclosamide.

**9201-0302** Alam, M., Joy, S., Ali, U.S.(Captain Srinivasa Murti Drug Research Institute for Ayurveda, Arumbakkam, Madras 600106, TN, India) **Antibacterial activity of Sida cordifolia Linn., Sida rhomboidea Roxb. and Triumfetta rotundifolia Lam..** *Indian Drugs*, v. 28(12): p. 570-572, 1991 (3 ref, Eng).

Alcoholic extracts of the plants exhibited antibacterial activity at a concentration of 1mg/ml. The alkaloidal portions of these plants except *T.rotundifolia*, showed activity at 100 micro g/ml of culture medium against *Staphylococ-*

*cus aureus* and *S.citreus*. *S.cordifolia* and *T.rotundifolia* showed better antibacterial activity than *S.rhomboidea*.

**9201-0303** Anke, H., Sterner, O.(Department of Biotechnology, University of Kaiserslautern, D 6750 Kaiserslautern, Federal Republic of Germany) **Comparison of the antimicrobial and cytotoxic activities of twenty unsaturated sesquiterpene dialdehydes from plants and mushrooms.** *Planta Medica*, v. 57(4): p. 344-346, 1991 (16 ref, Eng).

Twenty unsaturated sesquiterpene dialdehydes were tested for antimicrobial, algaecidal, cytotoxic, and mutagenic activity. In addition to the known antifungal activity, polygodial also exhibited antibacterial and cytotoxic activity; epipolygoidal was slightly less active. Both the compounds were isolated from *Polygonum hydropiper*. The most active compounds were: isovelleral, isoisovelleral, velleral, and methylmarasmate. With the exception of velleral, they also exhibited mutagenic activity in the Salmonella/microsome assay. Derivatization to less polar compounds usually increased the antimicrobial and cytotoxic effects and reduced mutagenicity, while the introduction of hydroxyl groups had the reverse effect.

**9201-0304** Caceres, A., Cano, O., Sama Yoa, B. , Aguilar, L.(Centre for Mesoamerican Studies on Appropriate Technology (CEMAT), Apartado Postal 1160, Guatemala 01001) **Plants used in Guatemala for the treatment of gastrointestinal disorders. 1. Screening of 84 plants against enterobacteria.** *Journal of Ethnopharmacology*, v. 30(1): p. 55-73, 1990 (47 ref, Eng).

Ethnobotanical surveys and literature reviews showed that 384 plants from 95 families are used in Guatemala for the treatment of gastrointestinal disorders. The activity of 84 of the most commonly used plants was screened in vitro against five enterobacteria pathogenic to man. Results indicate that 34 (40.48 percent) plants inhibit one or more of the enterobacteria tested. The commonly inhibited bacterium was *Snaphalium typhi* (33.73 percent) and the most resistant was *E.coli* (7.35 percent. *Byrsonima crassifolia, Diphysa robinioides, G.ulmifolia, Psidium guajava, Sambucus mexicana, Simarouba glauca, Smilax lundelii, Spondias purpurea* and *Tagetes lucida* exhibited best antibacterial activity. NML, New Delhi.

**9201-0305** Hughes, B.G. , Lawson, L.D.(Department of Research and Development, Murdock Healthcare, 10 Mountain Springs Parkway, Springville, UT 84663, USA) **Antimicrobial effects of Allium sativum L. (garlic), Allium ampeloprasum L. (elephant garlic), and Allium cepa L. (onion), garlic compounds and commercial garlic supplement products.** *Phytotherapy Research*, v. 5(4): p. 154-158, 1991 (35 ref, Eng).

Diallyl thiosulphinate (allicin), methyl allyl thiosulphinate, and allyl methyl thiosulphinate found in aqueous garlic clove and powder homogenates showed in vitro antibacterial and antifungal activities while garlic polar compounds, including alliin, did not. E/Z-ajoene, a minor but water-soluble transformation product of allicin found in vegetable oil-macerates of garlic, demonstrated anticandidal activity. Garlic showed greater antibacterial and antifungal activities than a number of onion types. Garlic and elephant garlic clove homogenates demonstrated similar activity. The anticandidal activities of commercially available garlic supplement products corresponded in general to the activities known for the chemical compounds found in the products.

**9201-0306** Laxmi, U.S., Rao, J.T.(Department of Chemistry, University of Saugar, Sagar 470003, MP, India) **Antimicrobial properties of the essential oils of Artemisia pallens and Artemisia vulgaris.** *Perfumerie und Kosmetik*, v. 72(8): p. 510-511, 1991 (7 ref, Eng).

The essential oils obtained from the leaves of both *A.pallens* and *A.vulgaris* exhibited significant antimicrobial activity against ten bacteria and four fungi. The oils showed almost the same activity as the standard in inhibiting the growth of *Salmonella typhi, S.paratyphi, Collectotrichum spp., Fusarium monilliferum, Helminthosporum longiporum* and *Trichoderma viridae* and more activity than the standard (Streptomycin) in controlling the growth of *Bacillus pumilus*.

**9201-0307** Lim-Sylianco, C.Y., Jocano, A.P. , Lim, C.M.(Institute of Chemistry, University of the Philippines, Diliman, Q.C. Philippines) **Antimutagenicity of twenty Philippine plants using the micronucleus test in mice.** *Philippine Journal of Science*, v. 117(3): p. 231-235 , 1988 (14 ref, Eng).

Expressions from twenty plants obtained from Quiapo market were found to reduce the genotoxicity of three mutacarcinogens, viz; methylmethane sulfonate, mitomycin C and dimethylnitrasamine. The plants are: *Manihot esculenta, Cymbopogon citratus, Eucalyptus deglupta, Persea americana, Lagestroemia speciosa, Musa sapientum, Dolichos lablab, Achras zapota, Imperata cylindrica, Pseudelephantopus spicatus, Alstonia scholaris, Sesbania grandiflora, Artocarpus heterophyllus, Pandanus odoratus, Rosmarinus officinalis, Ocimum sanctum, Ricinus communis, Cymbopogon citratus, Tectona grandis, Nauclea orientalis*.

**9201-0308** Ma, W.W., Kozlowski, J.F. , McLaughlin, J.L.*(Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana 47907, USA) **Bioac-**

**tive neolignans from Endlicheria dysodantha.** *Journal of Natural Products*, v. 54(4): p. 1153-1158 , 1991 (13 ref, Eng).

From bioactivity-directed fractionation of the EtOH extract of *E.dysodantha*, dysodanthin A(2) and dysodanthin B(3), which are new hexahydrobenzofuranoid neolignans, have been isolated. In addition, the known neolignans, compound 4, which is a burchellin analogue, and megaphone acetate(1) were isolated. All four neolignans showed activities in the brine shrimp lethality test; compounds 1-3 also inhibited the growth of crown gall tumors on potato discs and were cytotoxic to human tumor cells in culture. This is the first report of these neolignans isolated from the genus *Endlicheria* and of their completely assigned 1H- and 13C NMR data.

**9201-0309** Mahajan, V., Arora, D.S., Sabherwal, U.*(Department of Microbiology, Medical College, Rohtak, Haryana, India) **Antibacterial activity of some tea samples.** *Indian Journal of Microbiology*, v. 31(4): p. 443-445 , 1991 (9 ref, Eng).

An aqueous extract of green tea *(Camellia sinensis)* is a more effective inhibitor of bacterial growth black tea. Gram positive bacteria are more sensitive than gram negative and bactericidal activity is apparent within one hour of incubation with tea extract. NSL, New Delhi.

**9201-0310** Masuda, T., Inazumi, A., Yamada, Y. , Padolina, W.G., Kikuzaki, H., Nakatani, N.(Laboratory of Food Chemistry, Faculty of Science of Living, Osaka City University, Sumiyoshi, Osaka 558, Japan) **Antimicrobial phenylpropanoids from Piper sarmentosum.** *Phytochemistry*, v. 30(10): p. 3227-3228, 1991 (11 ref, Eng).

One new and three known phenylpropanoids have been isolated from the leaves of *P.sarmentosum*. They are 1-allyl-2,6-dimethoxy-3,4-methylenedioxybenzene, 1-allyl-2,4,5-trimethoxybenzene, 1-(1-E-propenyl)-2,4,5-trimethoxybenzene and 1-allyl-2-methoxy-4,5-methylenedioxybenzene. The new compound showed antimicrobial activity against *E.coli* and *B.subtilis*.

**9201-0311** Myint, S.H., Cortes, D., Laurens, A., Hocquemiller, R., Lebceuf, M., Cave, A. , Cotte, J., Quero, A.M.(Laboratoire de Pharmacognosie, SDI 62330 CNRS, Faculte de Pharmacie, Universite Paris-Sud, 92296 Chatenay-Malabry, France) **Solamin, a cytotoxic monotetrahydrofuranic gamma-lactone acetogenin from Annona muricata seeds.** *Phytochemistry*, v. 30(10): p. 3335-3338, 1991 (18 ref, Eng).

Using activity directed fractionation, the chromatography of the bioactive petroleum ether extract of *Annona muricata* seeds led to the isolation of a new monotetrahydrofuranic gamma-lactone acetogenin, solamin. Compparative structure activity relationships were performed, using the acetogenins from *A.muricata* in KB and VERO cell lines in *in vitro* tests.

**9201-0312** Nkunya, M.H.H., Weenen, H., Bray, D.H., Mgani, Q.A., Mwasumbi, L.B.(Department of Chemistry, University of Dar es Salaam, P.O. Box 35061, Dar es Salaam, Tanzania) **Antimalarial activity of Tanzanian plants and their active constituents: The genus Uvaria.** *Planta Medica*, v. 57(4): p. 341-343, 1991 (22 ref, Eng).

Petroleum ether, dichloromethane, and methanol extracts of leaves, stem and root bark of nine [Uvaria] species: [Uvaria dependens], [Uvaria faulknerae], [Uvaria kirkii], [Uvaria leptocladon], [Uvaria lucida] ssp [lucida], [Uvaria] sp, [Uvaria schefferi], and [Uvaria tanzaniae] were tested for their in vitro activity against the multidrug resistant K1 strain of Plasmodium falciparum. The IC50 values of the extracts varied between 5 and 500 microg/ml. The most active extracts were obtained from the stem and root bark of *Uvaria lucida* ssp *lucida* and *Uvaria* sp and the root bark of *Uvaria schefferi*, all of which had IC50 values between 5 and 9 microg/ml. Among the compounds isolated, uvaretin, diuvaretin, and (8',9-dihyroxy)-3-farnesylindole were the most active.

**9201-0313** Palanichamy, S., Nagarajan, S.*(Department of Chemistry, Bharathidasan University, Tiruchirapally 620024, TN, India) **Antifungal activity of Cassia alata leaf extract.** *Journal of Ethnopharmacology*, v. 29(3): p. 337-340 , 1990 (9 ref, Eng).

*C.alata* extract even at 20 percent w/v concentration did not show any significant activity against six contaminant fungal cultures. However, there was complete inhibition of growth of three dermatophyte cultures at 2.5 percent w/v dose level of the extract. NML, New Delhi.

**9201-0314** Qiao, Y.E., Wang, S.X., Wu, L.J. , Li, X., Zhu, T.R. (Department of Natural Products, Shenyang College of Pharmacy, Shenyang 110015, China) **Studies on antibacterial constituents from the roots of Rubia cordifolia L..** *Acta Pharmaceutica Sinica*, v. 25(11): p. 834-838 , 1990 (7 ref, Chi, Eng).

Twelve compounds were isolated from the roots of *R.cordifolia*. Nine of them were established by chemical and spectroscopic methods to be alizarin (I),1-hydroxy-2-methyl-9,10-anthraquinone (II), 1,3,6-trihydroxy-2-methyl-9,10-anthra-quinone-3-O-(6'-O-acetyl)-alpha-L -rhamnosyl(1 to 2)-beta-D-glucoside (III), 1,3,6-trihydroxy-2-methyl-9,10-anthraquinone-3-O-alpha-L-rhamnosyl(1 to 2)-beta-D-glucoside (IV),

1,3,6-trihydroxy-2-methyl-9,10-anthraquinone-3-O-(6'-O -acetyl)-beta-D- glucoside (V), 2-carbomethoxy-3-prenyl-1-4 naphthohydroquinone di-beta-D-glucoside (VI), rubimallin (VII), beta-sitosterol (VIII) and damosterol (IX). Among these V is a new compound and IX was obtained for the first time from this genus. Compounds III, VI, VII showed mild antibacterial activities.

**9201-0315** Rama Chandraiah, Reddy, M.B.(Department of Chemistry, SV Arts College, SV University, Tirupati 517502, AP, India) **Antifungal activity of some naturally occurring flavonoids.** *Indian Journal of Microbiology*, v. 31(1): p. 55-56 , 1991 (10 ref, Eng).

The ability of some naturally occurring flavonoids, obtained from *Rhynchosia cyanosperma, Rhynchosia suaveolens, Polygonum glabrum* and *Dalbergia paniculata* to inhibit fungal spore germination has been examined. Of the six flavonoids, only kaempferol-3-methyl ether, quercetin and quercitrin strongly inhibit the germination of spores of *Alternaria alternata* and *Curvularia lunata*. NSL, New Delhi.

**9201-0316** Said, I.M., Latiff, A., Partridge, S.J., Phillipson, J.D.(Department of Chemistry, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Malaysia) **Alkaloids from Dehaasia incrassata.** *Planta Medica*, v. 57(4): p. 389, 1991 (6 ref, Eng).

Extraction of the [Dehaasia incrassata] fresh leaves (500g) and the bark (350g) was carried out. The leaves contained more alkaloids (1.6 percent) when compared to the bark (0.6 percent) and showed a slightly different TLC profile. The alkaloids from the bark did not show any antimicrobial activity whereas the alkaloid mixture from the leaves was active against Streptococcus pneumoniae, Proteus mirabilis, and Pseudomonas pseudomallei. Further fractionation of the crude alkaloid mixture from the leaves gave three major components, viz., two aporphines (isocorydine and norisocorydine) and oxycanthine, a bis-benzylisoquinoline alkaloid. Oxycanthin showed antimalarial activity against Plasmodium falciparum (IC50 value of 0.31 microg/ml).

**9201-0317** Satyanarayana, V., Reddy, G., David Krupadanam, G.L., Srimannarayana, G.(Department of Chemistry, Osmania University, Hyderabad 500007, AP, India) **Antibacterial activity of some natural and synthetic organo heterocyclic compounds.** *Indian Journal of Microbiology*, v. 31(1): p. 57-60 , 1991 (12 ref, Eng).

Fifty two compounds were tested against Escherichia coli, Staphylococcus aureus which included 21 natural products, isolated from three medicinal plants namely, *Flacourtia ramontchi, Euphorbia nivulia, Cassia javanica* and 31 synthetic compounds. It was found that allylic phenolics were strongly antibacterial followed by halogenated chromanols. NSL, New Delhi.

**9201-0318** Siddiqui, N., Garg, S.C.(Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar 470 003, MP, India) **In vitro anthelmintic activity of some essential oils.** *Pakistan Journal of Scientific and Industrial Research* , v. 33(12): p. 536-537, 1990 (9 ref, Eng).

The essential oils from the grass of *Cymbopogon martinii* var *motia*, leaves of *Artabotrys odoratissimus* and inflorescence of *Capillipedium foetidum* in varying concentrations (0.1, 0.2 and 0.4 percent) have shown excellant to good anthelmintic activity against tape worms, round worms and earth worms in in vitro tests. The activity exceeds that of the drug piperazine phosphate.

**9201-0319** Srivastava, S., Rathore, A., Misra, N.(Department of Botany, Gorakhpur University, Gorakhpur 273009, UP, India) **Evaluation of essential oil of Cymbopogon martinii (Roxb.) Watts for the control of Fusarium oxysporum f. sp. udum causal organism of wilt of arhar (Cajanus cajan).** *Proceedings of the National Academy of Sciences India*, v. 60B(Pt.III): p. 291-296, 1990 (8 ref, Eng).

Leaves of 12 plant species *Abutilon indicum, Amaranthus spinosus, Callistemon lanceolatus, Cinnamomum camphora, Cymbopogon martinii, Euphorbia hirta, Jatropha curcas, Mussaenda fondosa, Ranunculus scleratus, Santalum album, Zingiber officinale, Zinnia elegans* were tested for their volatile toxicity against Fusarium oxysporum f. sp. udum. *Cymbopogon martinii* exhibited the stongest toxicity inhibiting the mycelial growth of the test pathogen. The volatile fungi-toxic constituent was isolated in the form of an essential oil and was characterised. The oil showed fungicidal nature of its MIC of 1500 ppm and was found to have broad fungitoxic spectrum. The fungitoxicity remained unchanged in temperature treatment after long storage period. It had no effect on *Cajanus cajan* plant. NSL, New Delhi.

**9201-0320** Syed, M., Khalid, M.R., Chaudhary, F.M.(PCSIR Laboratories Complex, Lahore 45600, Pakistan) **Essential oils of Gramineae family having antibacterial activity. Part I. [Cymbopogon citratus], [Cymbopogon martinii] and [Cymbopogon jawarancusa] oils.** *Pakistan Journal of Scientific and Industrial Research* , v. 33(12): p. 529-531, 1990 (9 ref, Eng).

The essential oils of lemon grass, *Cymbopogon citratus* (CC), Rosha grass or Palmarosa (*Cymbopogon martinii* var *motia*) (CMM) and Khavi grass, (*Cymbopogon jawarancusa*) (CJ) have been tested for antibacterial activity against Escherichia coli, Staphylococcus aureus, Shigella

flexneri and Salmonella typhi Part A, by using the spectrophotometric method. CC was the most active and caused complete inhibition of Staphylococcus aureus at less than 400 ppm. SMM was more active against [Shigella flexneri and Salmonella typhi, while CJ showed less activity than CC and CMM. The activity of the oil might be attributed to the components citral, geraniol and piperitone. Varieties rich in these components should be produced by breeding techniques.

**9201-0321** Wright, C.W., Bray, D.H., O'Neill, M.J., Warhurst, D.C., Phillipson, J.D. , Quetin-Leclercq, J., Angenot, L.(Department of Pharmacognosy, The School of Pharmacy, University of London, 29/39 Brunswick Square, London WC1N 1AX, UK) **Antiamoebic and antiplasmodial activities of alkaloids isolated from Strychnos usambarensis.** *Planta Medica*, v. 57(4): p. 337-340, 1991 (22 ref, Eng).

Seven alkaloids isolated from *Strychnos usambarensis* have been assessed for in vitro activities against Entamoeba histolytica and Plasmodium falciparum and for in vivo activity against Plasmodium berghei in mice. Strychnopentamine and 3',4'-dihydrousambarensine were highly active against Plasmodium falciparum in vitro, but were inactive and non-toxic against Plasmodium berghei in vivo. Usambarensine, usambarine, and 18,19-dihydrousambarine were highly active against Entamoebia histolytica in vitro, but were less active against Plasmodium falciparum in vitro. Nb-Methylusambarensine was less active against both protozoa than was usambarensine, and akagerine possessed little antiprotozoal activity. Structure-activity relationship are discussed in the context of the reported cytotoxic and pharmacological properties of these alkaloids.

## Insecticidal & Piscicidal Activity

**9201-0322** Alam, M.M.(Department of Botany, Aligarh Muslim University, Aligarh 202 002, UP, India) **Control of root-koot and stunt nematodes with horn meal, bone meal and oilseed cakes.** *Indian Journal of Nematology*, v. 19(2): p. 166-170 , 1989 ((Recd. 1991), 11 ref, Eng).

All the organic soil amendments including oil seed cakes of *Madhuca indica, Ricinus communis, Brassica campestris, Azadirachta indica* and *Arachis hypogea* were found to be effective in inhibiting nematode population and development.

**9201-0323** Gupta, S., Rao, P.J.(Division of Entomology, IARI, New Delhi 110012, India) **Effect of Azadirachtin on neuroendocrine system of Spodoptera litura (Fabr.).** *Indian Journal of Entomology*, v. 52(4): p. 589-594 , 1990 (28 ref, Eng).

The effect of single dose (1 micro g/g) of injected Azadirachtin into the last instar of Spodoptera litura on median neurosecretary cells (MNSC) Corpora allata was studied. In treated larvae, delayed accumulation of neurosecretary material in MNSC and a lower volume of CA were observed. NSL, New Delhi.

**9201-0324** Hashimoto, T., Tori, M., Asakawa, Y.(Faculty of Pharmaceutical Sciences, Tokushima Bunri University, Yamashiro-cho, Tokushima 770, Japan) **Piscicidal sterol acylglucosides from Edgeworthia chrysantha.** *Phytochemistry*, v. 30(9): p. 2927-2931, 1991 (17 ref, Eng).

New potent piscicidal sterol acylglucosides named chrysanthosides have been obtained from the flower of *E.chrysantha*, together with the previously known biscoumarin and grasshopper ketone and their structures characterized to be sitosterol-3-O-6-linoleoyl- and sitosterol-3-O-6-linolenoyl-beta-D-glucopyranosides by spectral data and synthesis. The natural and synthetic chrysanthosides possess potent piscicidal activity against kil-lie-fish which was killed within 3 hr at a concentration of 0.1 ppm.

**9201-0325** Jefferies, P.R., Toia, R.F., Casida J.E.(Pesticide Chemistry and Toxicology Laboratory, Department of Entomological Sciences, University of California, Berkeley, California 94720,USA) **Ryanodyl3-(pyridine-3-carboxylate): a novel ryanoid from Ryania insecticide.** *Journal of Natural Products*, v. 54(4): p. 1147-1149 , 1991 (13 ref, Eng).

Ryanodyl 3-(pyridine-3-carboxylate) was isolated as a minor component from the wet chloroform extract of Ryania insecticide (powdered stem wood to *R.speciosa*), and its structure was assigned by chemical and spectroscopic methods. This compound is essentially inactive compared with ryanodine for insecticidal activity against *Musca domestica* and *Tribolium castaneum* larvae, for toxicity to mice, and for competition with tritium labelled hyranodine at the Ca2+-ryanodine receptor complex of skeletal muscle.

**9201-0326** Meshram, N.J., Goswami, B.K.(Division of Nematology, Indian Agricultural Research Institute, New Delhi 110 012, India) **Role of dominant rhizosphere fungi isolated from soil amended with mustard and karanj cakes on hatching and mortality of Meloidogyne incognita juveniles.** *Indian Journal of Nematology*, v. 19(2): p. 180-185 , 1989 (Recd.1991, 5 ref, Eng).

The efficacy of two oil cakes, mustard and karanj (*Pongamia glabra*) against root knot nematode in tomato was determined by changes in the mycoflora brought about by them.

**9201-0327** Muralikrishana Rao, S., Chitra, K.C. , Gunesekhar, D., Kameswara Rao, P.(Department of Entomology, SV Agricultural College, Tirupati, AP, India) **Antifeedant properties of certain plant extracts against second stage larva of Henosepilachna vigintioctopunctata Fabricius.** *Indian Journal of Entomology*, v. 52(4): p. 681-685 , 1990 (13 ref, Eng).

Both petroleum ether and aqueous leaf extracts of 15 plants were tested against second instar grubs at different concentrations. All the concentrations of test plants showed varying degrees of antifeeding activity against second instar grub. Petroleum ether extracts at 0.5 and 1 percent and aqueous extracts at 1 and 5 percent of *Annona squamosa*, *Argemone mexicana*, *Calotropis gigantea* and *Ricinus communis* were found to be the most potent products which gave cent percent leaf protection. NSL, New Delhi.

**9201-0328** Pandey, K.C., Faruqui, S.A.(Indian Grassland & Fodder Research Institute, Jhansi 284003, UP, India) **Preferential response of lucerne weevil to crude extracts of some Medicago species.** *Indian Journal of Entomology*, v. 52(4): p. 610-612 , 1990 (6 ref, Eng).

Preferential response of lucerne weevil to crude extracts of *M.sativa*, *M.intertexta*, *M.arabica*, *M.murex* *M.tornata*, *M.scutellata*, *M.rugosa*, *M.truncatula* has been studied. Response ratio indicated high attraction of weevils to *M.sativa*, *M.intertexta*, and *M.arabica* at 10, and 100 microgram concentrations. The weevils showed repellancy to *M.tornata*, *M.rugosa* and *M.scutellata* at all the concentrations. However, the weevils exhibited repellency at 1000 micro g concentration of the extracts of all the species examined. NSL, New Delhi.

**9201-0329** Rajapakse, R.H.S., Jayasena, K.W.(Department of Agronomy, University of Ruhuna, Mapalana, Kumburupitiya, Srilanka) **Plant resistance and biopesticide from lemongrass oil for suppressing Spodoptera litura in peanut.** *Agriculture International*, v. 43(6): p. 166-167, 1991 (4 ref, Eng).

The susceptibility of *S.litura* larvae to different concentrations (0.2, 0.4 and 0.8 percent) of essential oils of *Cymbopogon citratus* has been studied in southern Sri Lanka in relation to host plant resistance in peanut. Field trials indicate that larvae developing on the most susceptible variety had the lowest mortality due to the biopesticide lemongrass oil. Larvae treated with lemongrass oil before feeding showed significant higher mortality on the diet containing resistant pods than on that containing susceptible pods.

**9201-0330** Shah, N., Qadry, J.S., Subramanian, B., Vergese, T., Rahman, S.J., Sharma, S.K.(Faculty of Pharmacy, Jamia Hamdard, New Delhi 110062, India) **Toxic effects of Gliricidia sepium against mosquito larvae of Anopheles stephansi, Aedes aegypti and Culex quinquefasciatus [No. P-1.112, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, November 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 238, 1991 (Eng).

The ethanol extract of the dried leaves of *G.sepium* was tested for toxicity against the mosquito larvae in the 3rd instar larvae stage with 0.5-4.0 percent extracts, and showed concentration dependent larvae mortality. The bioinsecticidal property is being reported for the first time for this legume.

**9201-0331** Shelke, S.S., Jahav, L.D., Salunkhe, G.N.(Department of Entomology, Mahatma Phule Agricultural University, Rahuri 413722, Maharashtra, India) **Toxicity of some vegetable oils/extracts to Chelomus blackburni Cam. an egg larval parasite of Phthorimaca operculelca (Zell.).** *Indian Journal of Entomology*, v. 52(4): p. 709-711 , 1990 (5 ref, Eng).

The study was conducted to explore the possibility of using parasite along with oils/extracts in integrated programme of potato tuberworm and to determine the toxicity of some vegetable oil/extracts to egg-larval parasite. From the results obtained it was observed that the mortality of egg larval parasite by contact toxicity with oils/extracts after 24 and 48 hours of treatment including control ranged between 3.33 to 13.33 and 6.67 percent respectively. The difference in treatment was statistically non significant. It is concluded that the vegetable oils/extracts used are safe to *Chelonus blackburni*. NSL, New Delhi.

**9201-0332** Srivastava, R.P., Proksch, P.(G.B.Pant University of Agriculture and Technology, Pantnagar- 263145, Nainital, UP,India) **Toxicity and feeding deterrent activity of some secondary plant substances to insect pests [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, November 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 279, 1991 (Eng).

Secondary plant metabolites have been known to play a major role in chemical defense of the plants against insect herbivores. Crude MeOH extracts (from leaves or flowering heads) from different plant species belonging to 10 different families were incorporated into artificial diet in a series of dilutions and studied for their effects on the survival of neonate larvae of the polypagous,*Spodoptera littoralis* (Noctuidae). The extracts from Asteraceae species *Encelia*

*palmeri*(leaves) and *Ageratum houstonianum* (flowering heads) that are rich in chromenes proved insecticidal at concentrations well below those found in the plants. The activity matches with the well known insecticidal plant, *Chrysanthemum cinerariifolium* and *Heracleum mantegazzianum*causing complete mortality of the larvae even at 25 percent of the natural concentration. Encecalin is the kanor biotoxic compound in the crude extract of E.palmeri. Corresponding comparison with pure compound prococene II did not confirm that it is the only biotoxic compound in the crude extract of *A.houstonianum*. The other secondary plant metabolites, the sesquiterpene (encelin), chromenes (precococene II, lencecalin, demethylencecalin) showed no toxicity feeding..

**9201-0333** Sufia, B., Chatterjee, N.B.. **Histological and histochemical alteration induced by extract of neem Azadirachta indica kernels in the ovaries of Caryedon gangara (Caleoptera: Bruchidae) [No. P-1.29, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, November 24-28, 1991.** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 247, 1991 (Eng).

The effect of neem kernel extract on the ovary and oogeneis of tamarind seed borer *C.gangara* have been evaluated histologically and histochemically by comparing them with oogenesis in the normal maturing females when the insect reared on Tamarind seed treated with neem kernel extract appear smaller and transport. The ovaries in which oocyte has already been developed show degenerative changes and also the rear absorptive phenomenon in the ooctyes has also been observed. Minimal yolk deposition takes place in the vitellogenic oocytes of the treated females. Epithelial cells and trophocytes are affected and the charion formation in the post vitellogenic follicles are also disturbed due to the treatment by neem extract.

**9201-0334** Ujvary, I., Eya, B.K., Grendell, R.L., Toia, R.F., Casida, J.E.(Pesticide Chemistry and Toxicology Laboratory, Department of Entomological Sciences, University of California, Berkeley, California 94720, USA) **Insecticidal activity of various 3-acyl and other derivatives of veracevine relative to the Veratrum alkaloids veratridine and cevadine.** *Journal of Agricultural and Food Chemistry*, v. 39(10): p. 1875-1881, 1991 (39 ref, Eng).

Sixty-five 3-acyl derivatives of veracevine, including 44 aromatic and 21 aliphatic esters or related derivatives, were isolated or prepared and their insecticidal activities determined by topical application to adult houseflies and milkweed bugs. Of these the naturally occurring veratridine [3-(3,4-dimethoxybenzoyl)veracevine] and cevadine [3-[(Z)-2-methylbut-2-enoyl] veracevine, insecticidal principles of "Sabadilla" preparations from *Schoenucaulon officinale* also known as *Veratrum sabadilla* are near optimal in potency. In the aromatic ester series, the 2,5-and 3,5-dimethoxy analogues are more potent than veratridine and the 3,5-dimethoxy compound is also improved in selective toxicity, i.e., LD50 ratio for mice vs the insects tested.

**9201-0335** Zaki, F.A., Bhatti, D.S.(Department of Nematology, Haryana Agricultural University, Hissar 125 004, Haryana, India) **Effect of castor** *Ricinus communis* leaves in combination with different fertilizer doses in Meloidogyne javanica infecting tomato. *Indian Journal of Nematology*, v. 19(2): p. 171-176 , 1989 (Recd. 1991, 21 ref, Eng).

Castor leaves alone or in combination with different levels of N,P and K enhanced plant growth and reduced nematode population. Effectiveness of castor in reducing the nematode population was better in the fertilizer treatments than in unfertilized one.

## Phytochemistry

**9201-0336** Abdei-Mogib, M., Dawidar, A.M. , Metwally, M.A., Abou-Elzahab, M.(Chemistry Department, Faculty of Science, Mansoura University, Mansoura, Egypt) **Xanthanolides from Xanthium spinosum.** *Phytochemistry*, v. 30(10): p. 3461-3462, 1991 (6 ref, Eng).

An extract of *X.spinosum* gave a new xanthanolide in addition to many known ones. Its structure was established by spectral methods as well as by chemical modification.

**9201-0337** Abdul Sattar, Gilani, A.F., Saeed, M.A.(PCSIR Laboratories Complex, Lahore 54600, Pakistan) **Gas chromatographic examination of the essential oil of Cinnamomum camphora.** *Pakistan Journal of Scientific and Industrial Research* , v. 34(4): p. 135-136, 1991 (6 ref, Eng).

Volatile oil obtained by steam distillation of leaves, twigs, wood bark of an old tree and whole young plant of *C.camphora* ssp *eu camphor* (camphor tree) on gas chromatography afforded over 25 monoterpenoids. Camphor was present in the highest amounts in oil of leaves (83.78 percent) followed by whole young plant (64.76 percent), twigs (61.83 percent) and wood (51.65 percent). The bark oil contained least amount of camphor. Safrole, linalool and cineol present in large amounts in other varieties of *C.camphora* were found in minor amounts.

**9201-0338** Abe, F., Chen, R.F., Yamauchi, T.(Faculty of Pharmaceutical Sciences, Fukuoka University, 8-19-1 Nanakuma, Jonan-ku, Fukuoka 814-01, Japan) **Iridals**

**from Belamcanda chinensis and Iris japonica.** *Phytochemistry*, v. 30(10): p. 3379-3382, 1991 (4 ref, Eng).

Three new iridals were isolated, along with two known compounds; (+)-(6R,10S,11S,14S,26R)-26-hydroxy-15-methylidenespiroirid-16-enal and iso-iridogermanal, from the rhizomes and roots of *B.chinensis* and *I.japonica*. The new iridals were determined to be 28-acetoxy-14,15-dihydro-26-hydroxy-19-methylidenespiroirida-15,17-die nal(belamcandal), its deacetyl derivative and 16-O-acetyl iso-iridogermanal. Their fatty acid esters were also isolated. Belamcandal stimulates throat membrane.

**9201-0339** Abou-Donia, A.H., De Giulio, A. , Evidente, A., Gaber, M., Habib, A.A. , Lanzetta, R., Seif El Din, A.(Department of Pharmacognosy, University of Alexandria, Alexandria, Egypt) **Narciclasine-4-O-beta-D-glucopyranoside, a glucosyloxy amidic phenanthridone derivative from Pancratium maritimum.** *Phytochemistry*, v. 30(10): p. 3445-3448, 1991 (16 ref, Eng).

Bulbs of *P.maritimum* were found to contain a new glucosyloxy phenolic metabolite as well as 14 known Amaryllidaceae alkaloids. The phenolic metabolite was identified as narciclasine-4-O-beta-D-glucopyranoside. When tested in *Artemia salina* and potato disc assays the new glucoside showed cytotoxic and antitumour activity very similar to narciclasine.

**9201-0340** Abu Zarga, M.H., Sabri, S.S.* , Al-Tel, T.H., Atta-ur-Rahman, Shah, Z. , Feroz, M.(Chemistry Department, University of Jordan, Amman, Jordan) **New natural dibenzocycloheptylamine alkaloids: A possible catabolic route for the colchicine alkaloids.** *Journal of Natural Products*, v. 54(4): p. 936-940 , 1991 (7 ref, Eng).

*Colchicum decaisnei* of Jordanian origin has yielded three new alkaloids, (-)-jerusalemine, (-)-salimine, and (-)-suhailamine, besides the known alkaloid (-)-androbiphenyline.

**9201-0341** Adesomoju, A., Ekundayo, O., Oke, T., Eramo, T., Laakso, I., Hiltunen, R.(Department of Chemistry, University of Ibadan, Nigeria) **Volatile constituents of Monodora tenuifolia fruit oil.** *Planta Medica*, v. 57(4): p. 393-394, 1991 (6 ref, Eng).

The analysis of the volatile components in the essential oil of the fruits of [M.tenuifolia] showed the presence of at least thirty-six components and thirty-three of these were identified, amounting to 84.9 percent of the total oil. The essential oil is mainly composed of sesquiterpene hydrocarbons (80.9 percent) with delta-elemene and germacrene-D being the predominant constituents (24.8 percent and 31.2 percent, respectively). Other major sesquiterpene hydrocarbons in the oil are alpha-santalene (2.4 percent), beta-elemene(1.8 percent), beta-caryophyllene (2.0 percent), delta-cadinene (5.9 percent), and gamma-cadinene (4.6 percent).

**9201-0342** Agrawal, P.K.(Central Institute of Medicinal and Aromatic Plants, Lucknow 226016, UP, India) **Hentriacontan-7-ol and hentriacont-7Z-ene from Tamarix dioica.** *Planta Medica*, v. 57(4): p. 397, 1991 (6 ref, Eng).

Chromatographic fractionation of the hexane extract aerial parts of *T.dioica* afforded two compounds viz; hentriacontan-7-ol and hentriacont-7Z-ene. This is the first report of the occurrence of these compounds from a plant source.

**9201-0343** Ahmad, V.U., Baqai, F.T., Fatima, I., Ahmad, R.*(H.E.J. Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **A spirostanol glycoside from Cestrum nocturnum.** *Phytochemistry*, v. 30(9): p. 3057-3061, 1991 (17 ref, Eng).

A new steroidal saponin named nocturnoside A has been isolated from the methanolic extract of the fresh leaves of *C.nocturnum* and has been characterized by 13C NMR spectroscopy to be 3-O-[beta-D-glucopyranosyl(1to3)-beta-D-glucopyranosyl(1to2)-beta-D-gluc opyranosyl {(3to1)-beta-D-xylopyranosyl}(1to4)-beta-D-galactopyr anosyl] (25S)-spirost-5-ene-2alpha,3beta-diol.

**9201-0344** Ahmed, B., Sharma, S.(Department of Pharmaceutical Chemistry, Jamia Hamdard, Hamdard University, New Delhi 110062, India) **Chemical investigation of the fruits of Cressa cretica Linn.- An antituberculosis drug [No. P-1.106, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 235, 1991 (Eng).

The powered fruits of *C.cretica* (2.0 kg) were extracted exhaustively with ethanol and the ethanolic extract after concentration was partitioned between petroleum ether, ethyl acetate and n-butanol fractions. The n-butanol fraction on chromatography afforded three new isoflavone glycosides and a flavone glycoside. Their structures were elucidated by chemical and spectral methods and were characterized as 7,4'-dihydroxy-5-methoxycoumaranochromone-7-O-beta-D-glucoside, 3'-hydroxy diadzein-7-O-alpha-L-rhamnopyranosyl (1 to 2)-O-beta-D-glucopyranoside, 3'-hydroxy diadzein-7-O-beta-D-xylopyranosyl(1 to 6)-O-beta-D-glucopyranoside and

Quercetin-3-O-beta-D-xylopyranosyl(1 to 6)-O-beta-D-glucopyranoside.

**9201-0345** Ahmed, J., Khan, H.A.(Department of Botany and Medical Elementology and Toxicology, Jamia Hamdard, New Delhi 110 062, India) **Plants as a source of essential elements [Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, Nov 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 253, 1991 (7 ref, Eng).

The distribution and accumulation patterns of trace elements in various species of plants used in traditional systems of medicine has been studied with a view to treating a variety of ailments. Thus the plants rich in beneficial elements may be recommended to make up the imbalance of these elements in certain diseases.

**9201-0346** Ahmed, M., Datta, B.K., Rouf, A.S.S., Jakupovic, J.* (Department of Pharmacy, University of Dhaka, Dhaka 1000, Bangladesh) **Flavone and alpha-santalene derivatives from Polygonum flaccidum.** *Phytochemistry*, v. 30(9): p. 3155-3156, 1991 (2 ref, Eng).

Chemical investigation of *Polygonum flaccidum* revealed the presence of a new acylflavone and an alpha-santalene derivative. The structures of the compounds were elucidated by high field 1H NMR spectroscopic techniques.

**1100-0347** Akdemir, Z., Calis, I.(Hacettepe University, Faculty of Pharmacy, Department of Pharmacognosy, 06100 Ankara, Turkey) **Iridoid and phenylpropanoid glycosides from Pedicularis pontica Boiss..** *Turkish Journal of Pharmacy*, v. 1(2): p. 67-75, 1991 (13 ref, Eng).

Isolation and structure determination of six iridoid glucosides, mussaenoside, euphroside, 8-epiloganin, catalpol, aucubin and geniposidic acid in addition to the phenylpropanoid glycosides, verbascoside and echinacoside have been reported from the aerial parts of, *P.pontica*.

**9201-0348** Al-Jaber, N.A.A., Mujahid, T.G. , Al-Hazimi, H.M.G. (Department of Chemistry, College of Science, King Saud University, P.O. Box 2455, Riyadh 11451, Saudi Arabia) **Pentacyclic triterpenoids from Cornulaca monocantha.** *Journal of the Chemical Society of Pakistan*, v. 13(1): p. 53-56, 1991 (9 ref, Eng).

The aerial parts of *C.monacantha* on ethanol extraction afforded two pentacyclic triterpenoids epikatonic acid (C30H48O3, mp 260 degrees C and 3-beta-acetoxyolean-12-(18to29) lactone (C32H48O4, mp 295 degrees C. However,the otherwise reported manevalic acid and azizic acid could not be obtained in this work.

**9201-0349** Al-Tel, T.H., Zarga, M.H.A., Sabri, S.S., Feroz, M., Fatima, N., Shah, Z. , Atta-ur-Rahman*(College of Science and Technology, Jerusalem) **Phenolics from Colchicum decaisnei.** *Phytochemistry*, v. 30(9): p. 3081-3085, 1991 (14 ref, Eng).

*C.decaisnei* has yielded three new compounds, namely, dibenzo[b,f][1,5]dioxocin, 4,6-dimethoxy-3,7-dimethyl coumarin and 3-O-demethyl-N-desacetyl-N-formyl-beta-lumicolchicine, as well as the first report of 2-hydroxy-3-methoxy benzoic acid from a natural source.

**9201-0350** Aladsesanmi, A.J., Snyder, J.K. , Kelley, C.J., Hoffmann, J.J.(University of Arizona, Office of Arid Lands Studies, Bioresources Research Facility, 250 E. Valencia Road, Tucson, Arizona 85706, USA) **Homoerythrina alkaloids of Phelline comosa.** *Phytochemistry*, v. 30(10): p. 3497-3498, 1991 (9 ref, Eng).

Six alkaloids have been isolated from the heartwood of *P.comosa*. The six homoerythrina alkaloids were characterized by spectroscopic methods. Two of the alkaloids have been identified as 2alpha-hydroxy-comosivine and 2alpha-hydroxy-dyshomerythrine.

**9201-0351** Alam, S., Jain, N., Kamil, M. , Ilyas, M.(Department of Chemistry, Faculty of Science, Hamdard University, New Delhi-110 062, India) **A rare flavone from Ficus luscens [No. P-1.115, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, November 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 239, 1991 (Eng).

The defatted leaves of *F.luscens* were exhaustively extracted with MeOH and the methanolic extract was partitioned between ethyl acetate and water. Column chromatography of the ethyl acetate layer on silica gel afforded a new and rare flavone with 3',6' oxygenation pattern of ring B. Considering the multiferious effects of flavonoids as cardiac-depressive, hypotensive, coronary vasodilators, antidiarrhoeal etc., this new natural product is being investigated for cardiac-depressive, hypotensive and antidiarrhoeal effects as these activities are present in the plant under investigation.

**9201-0352** Ali, M.(Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi 110 062, India) **Phenanthroindolizidine alkaloids from Tylophora species: their antiamoebic, anticandidal and contact dermatitis properties. {No.P1-108, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 236, 1991 (Eng).

Twenty-two phenanthroindolizidine alkaloid's a benzcyclopent substituted phenanthrene derivative and three aliphatic compounds have been isolated from aerial parts of *T.indica* and *T.hirsuta* in addition to known compounds.The alkaloids exhibited activity against axenic acid polyxenic strains of *Entamoeba histolytica* in vitro. The alkaloids showed anticandidal activity. Plant extract and purified alkaloids also caused contact dermatitis to certain individuals.

**9201-0353** Allais, D.P., Simon, A., Bennini, B., Chulia, A.J., Kaouadji, M., Delage, C.(Laboratoire de Pharmacognosie, Laboratoire de Toxicologie, Universite de Limoges, 2, rue du Docteur Marcland, F-87025 Limoges Cedex, France) **Flavone and flavonol glyncosides from Calluna vulgaris.** *Phytochemistry*, v. 30(9): p. 3099-3101, 1991 (20 ref, Eng).

The new flavonoid glycosides, apigenin 7-(2-acetyl 6-methyl) glucuronide and kaempferol 3-triacetylarabinosyl(1to6) glucoside have been isolated from flowers of *C.vulgaris* and characterized by chemical and spectroscopic means.

**9201-0354** Ansari, S.H., Ali, M., Qadry, J.S.(Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi-110062, India) **Analysis of essential oils of Pistachia integerrima [No. P.1-110 Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, November 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health* , v.1(1): p. 237, 1991 (Eng).

The essential oil obtained from the galls and bark of *P.integerrima* used in fragrance, perfumes and as deodorant, was extracted by Clavanger's apparatus on TLC. Alpha-pinene, beta-pinene, dalta-3-carene, alpha-terpineol, beta-phellandrene, beta-terpineol delta-pinene, gamma-terpenene, limonene, alpha-ocemine, 1-8 cineole and beta-elemene were identified in the essential oils. Analytical techniques were displayed.

**9201-0355** Arbain, D., Putra, D.P., Sargent, M.V.(Department of Organic Chemistry, The University of Western Australia, Nedlands, Western Australia, 6009) **Tetrahydroalstonine from Ophiorrhiza discolor.** *Planta Medica*, v. 57(4): p. 396, 1991 (3 ref, Eng).

The chopped fresh aerial parts of *O.discolor* afforded the isolation of heteroyhimbine alkaloid (-)-tetrahydroalstonine (mp 227-229 degree C).The compound was identified on the basis of its H and C NMR spectra.

**9201-0356** Arisawa, M., Hayashi, T., Shimizu, M., Morita, N., Bai, H., Kuze, S. , Ito, Y(Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama 930-01, Japan) **Isolation and cytotoxicity of two new flavonoids from Chrysosplenium grayanum and related flavonols.** *Journal of Natural Products*, v. 54(3): p. 898-901 , 1991 (14 ref, Eng).

In view of the observation that a chloroform soluble fraction of the MeOH extract of *C.grayanum* has shown cytotoxic activity in the KB cell in vitro system, the fraction has been further fractionated to furnish five known flavonoids (chrysosplenols B, D, and E, retusin, and brickellin), 3,5-dihydroxy-4-methoxybenzoic acid methyl ester, and two new flavonoids named chrysosplenols F{1} and G{2}. The structures of the new flavonoids have been elucidated to be 5,4',5'-trihydroxy-3,7,2'-trimethoxyflavone {1} and 5,5'-dihydroxy-3,7,2',4'-tetramethoxyflavone {2} on the basis of spectral data. Certain of the isolated compounds and related flavonol aglycones showed marginal activities against KB cells in vitro.

**9201-0357** Arruda, A.C., Vieira, P.C. , Fernandes, J.B., Da Silva, M.F.D.G.F. , Francisco, R.H.P., Rodrigues, A.M.G.D. , Lechat, J.R. (Departamento de Quimica, Universidade Federal de Sao Carlos, 13560 Sao Carlos, SP, Brazil) **Two pyrano flavones from Neoraputia alba.** *Phytochemistry*, v. 30(9): p. 3157-3159, 1991 (9 ref, Eng).

The petrol extract from leaves of *N.alba* yielded two flavones, in addition to sitosterol. The two new flavones were identified as:7,8,3',4'-tetramethoxy-6, 5-(2",2"-dimethylpyran)flavone and 7,8,3',4',5'-pentamethoxy-6,5-(2",2"-dimethylpyran)flavone. The compounds were identified by spectroscopic analysis. The structure of the first compound was confirmed by X-ray diffraction.

**9201-0358** Atta-ur-Rahman, Abbas, S.A., Nighat, F., Ahmed, G., Choudhary, M.I., Alvi, K.A. , Habib-ur-Rehman, De Silva, K.T.D. , Arambewela, L.S.R.(HEJ Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **Chemical constituents of Alstonia macrophylla.** *Journal of Natural Products*, v. 54(3): p. 750-754 , 1991 (19 ref, Eng).

Three new indole alkaloids, alstonamide, demethoxyalstonamide, and alstoumerine(mp 170 degree C have been isolated from the leaves of *A.macrophylla*. The first two alkaloids are of the vincorine type, and the third is of the sarpagine type.

**9201-0359** Atta-ur-Rahman, Pervin, A. , Choudhary, M.I., Hasan, N., Sener, B.(H.E.J. Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **Sophazrine-a novel quinolizidine alkaloid from Sophora**

**griffithii.** *Journal of Natural Products*, v. 54(4): p. 929-935 , 1991 (16 ref, Eng).

A novel quinolizidine (lupine) alkaloid, sophazrine, has been isolated from the leafy shoots of *S.griffithii*. X-ray crystallography of another related alkaloid, anagyrine, isolated from the leaves of *Thermopsis turcica*, confirmed its structure.

**9201-0360** Awang, K., Pais, M., Sevenet, T. , Schaller, H., Nasir, A.M.*, Hadi, H.A.(Institut de Chimie des Substances Naturelles, C.N.R.S., 91198 Gif-sur-Yvette, France) **Eburnaminol and larutensine, alkaloids from Kopsia larutensis.** *Phytochemistry*, v. 30(9): p. 3164-3167, 1991 (19 ref, Eng).

Bark and stems of *K.larutensis* were extracted to afford six alkaloids two of which are new, viz. eburnaminol and larutensine. Both possess the eburnane skeleton and the latter has an additional ether linkage between C-16 and C-18. The structures of the new alkaloids were elucidated by spectral methods.

**9201-0361** Bahuguna, S., Kishor, N., Sati, O.P.*, Sati, S.P., Sakakibara, J., Kaiya, T.(Department of Chemistry, H.N.B. Garhwal University, Srinagar(Garhwal), 246174, UP, India) **New spirostanol glycoside from Yucca aloifolia.** *Journal of Natural Products*, v. 54(3): p. 863-865 , 1991 (14 ref, Eng).

From the EtOH extract of the rhizomes of *Y.aloifolia* a new gitogenin-based glycoside has been isolated and characterized as 3-O-{beta-D-xylopyranosyl(1to3)-beta-D-glucopyranosyl(1to3)-beta-D-xylo pyranosyl(1-3)-beta-D-glucopyranosyl(1-3)-beta-D-gluc opyranosyl}-25R, 5alpha-2alpha,3beta-diol, using fdms, fabms, 1H-NMR, 13C-NMR, and chemical studies.

**9201-0362** Barroso, J.G., Pedro, L.G., Pais, M.S., Scheffer, J.J.C. (Departamento de Biologia Vegetal, Faculdade de Ciencias de Lisboa, Bloco C-2, Piso 1, Campo Grande, 1700 Lisboa, Portugal) **Composition of the essential oil of Schinus latifolius Engl.**. *Flavour and Fragrance Journal*, v. 6(3): p. 237-239 , 1991 (6 ref, Eng).

Essential oil isolated by hydrodistillation from leaves of *S.latifolius* was analysed by GC and GC-MS. Forty-eight components of the oil were identified; they represented 96 percent of the oil which contained mainly monoterpenes; beta-pinene (35 percent), sabinene (24 percent) and alpha-pinene (21 percent) being the major constituents. Sesquiterpenes, which were all found in a concentration lower than 1 percent, constituted 6.5 percent of the oil; the oxygen-containing components of these, all alcohols, amounted to 4.8 percent. Phytochemical studies on the oil have not been reported previously.

**9201-0363** Beutler, J.A., Chmurny, M., Look, S.A., Witherup, K.M. (Laboratory of Drug Discovery Research & Development, National Cancer Institute, Bldg. 560-15 NCI-FCRDC, Frederick, MD 21702-1201, USA) **Taxinine M, a new tetracyclic taxane from Taxus brevifolia.** *Journal of Natural Products*, v. 54(3): p. 893-897 , 1991 (9 ref, Eng).

The isolation of a novel tetracyclic taxane, taxinine M (C35H42O14), from *T.brevifolia* bark and its structure elucidation by spectroscopic methods are reported.

**9201-0364** Bhakuni, R.S., Shukla, Y.N., Thakur, R.S.(Central Institute of Medicinal and Aromatic Plants Lucknow 226 016, UP, India) **Melochicorine, a pseudooxindole alkaloid from Melochia corchorifolia.** *Phytochemistry*, v. 30(9): p. 3159-3160, 1991 (8 ref, Eng).

A cyclopeptide alkaloid, franganine, and a new pseudooxinidole alkaloid, melochicorine, have been isolated from *M.corchorifolia*. The latter compound was characterized from its spectral data and by acetylation as 2-heptyl-2-hydroxy-4-methyl-6-methoxypseudooxindole.

**9201-0365** Calis, I., Tasdemir, D., Wright, A.D., Sticher, O. (Department of Pharmacognosy, Faculty of Pharmacy, Hacettepe University, 06100 Ankara, Turkey) **Lagotoside: A new phenylpropanoid glycoside from Lagotis stolonifera.** *Helvetica Chimica Acta*, v. 74(6): p. 1273-1277, 1991 (9 ref, Eng).

From the aerial parts of *L.stolonifera*, a new phenylpropenoid glycoside, lagotoside, and three known glycosides ehrenoside, verbascoside, and plantamajoside were isolated together with the four known iridoid glucosides aucubin, catalpol, globularin and lythantosalin. Structure of lagotoside has been elucidated as 2-(3-hydroxy-4-methyoxyphenyl)ethyl O-[alpha-L-arabinopyranosyl-(1to2)]-O-[alpha-L-rhamn opyranosyl-(1to3)]-4-O-feruloyl-beta-D-glucopyranoside.

**9201-0366** Calis, I., Basaran, A.A., Saracoglu, I., Sticher, O., Ruedi, P.(Department of Pharmacognosy, Faculty of Pharmacy, Hacettepe University, TR-06100 Ankara, Turkey) **Phlinosides D and E, phenylpropanoid glycosides, and iridoids from Phlomis linearis.** *Phytochemistry*, v. 30(9): p. 3073-3075, 1991 (7 ref, Eng).

Two new phenylpropanoid glycosides, phlinosides D and E were isolated from the methanolic extract of the aerial parts of *P.linearis*, along with the known iridoid glucosides, lamiide, ipolamiide and auroside (=5-hydroxy-8-epiloganin). On the basis of chemical and spectral evidence the structures of phlinosides D and E were determined as 3,4-dihydroxy-beta-phenylethoxy-O-beta-D-xylopyranos yl-(1 to 2)-alpha-L-rhamnopyranosyl-(1 to 3)-4-O-feruloyl-

beta-D-glucopyranoside and 3,4-dihydroxy-beta-phenylethoxy-O-alpha-L-rhamnopyranosyl-(1 to 2)-alpha-L-rhamnopyranosyl-(1 to 3)-4-O-feruloyl-beta-D-glucopyranoside, respectively.

**9201-0367** Carnat, A.P., Chossegros, A. , Lamaison, J.L. (Laboratoire de Pharmacognosie et Phytotherapie Faculte de Pharmacie, 28 Place H Dunant, 6300 Clermont-Ferrand, France) **The essential oil of Satureja grandiflora(L.) Scheele from France.** *Journal of Essential Oil Research*, v. 3(5): p. 361-362 , 1991 (3 ref, Eng).

The essential oil obtained by hydrodistillation of *S.grandiflora* growing in France (Massif Central), was analyzed by GC/MS. It was found that the major components were pulegone (27.61 percent), isomenthone(24.7 percent), neoisomenthol(23.72 percent) and menthol (10.76 percent).

**9201-0368** Chalchat, J.C., Garry, R.P. , Lecomte, E., Michet, A. (Equipe Chimie des Huiles Essentielles, Groupe de Chimie Organique 2, Universite Blaise Pascal de Clermont, 63177 Aubiere Cedex, France) **Hydroformylations of some monoterpenes and sesquiterpenes from essential oils.** *Flavour and Fragrance Journal*, v. 6(3): p. 179-182 , 1991 (9 ref, Eng).

Hydroformylation in the presence of tris(triphenylphosphine)rhodium carbonyl hydride was performed on selected terpenes: terpinolene, S(-)limonene, alpha- and beta-cedrenes, alpha- and beta-caryophyllenes and caryophyllene oxide. Use of these new fragrant compounds in perfumery has been suggested.

**9201-0369** Chalchat, J.C., Garry, R.P., Michet, A.(Equipe Chimie des Huiles Essentielles, Universite Blaise Pascal de Clermont, 63177 Aubiere Cedex, France) **Chemical composition of essential oil of Calendula officinalis L.(pot marigold).** *Flavour and Fragrance Journal*, v. 6(3): p. 189-192 , 1991 (5 ref, Eng).

The essential oil of *C.officinalis* was obtained in low yield (0.3percent) by steam distillation with cohobation from flowers and whole plants. Of sixty-six components identified by GC-MS, sesquiterpene alcohol, alpha-cadinol was the main constituent (about 25 percent). The essential oil from the whole plant differed from that of the flowers by the presence of monoterpene hydrocarbons in addition to the alcohols.

**9201-0370** Chan, K.L., Lee, S.P., Sam, T.W.* , Tan, S.C., Noguchi, H., Sankawa, U.(School of Chemical Sciences, University of Science Malaysia, Penang 11800, Malaysia) **13beta,18-Dihydroeurycomanol, a quassinoid from Eurycoma longifolia.** *Phytochemistry*, v. 30(9): p. 3138-3141, 1991 (6 ref, Eng).

A new quassinoid, 13beta,18-dihydroeurycomanol, and 14,15beta-dihydroxyklaineanone have been isolated from the roots of *E.longifolia*. On the basis of NOE and 1H-1H COSY measurements, the previous 1H NMR assignment for the C-4 and C-10 methyl groups of eurycomanol-2-O-beta-D-glycopyranoside and eurycomanol are reversed.

**9201-0371** Chen, H.Y., Shen, Y.C., Chen, C.H.(National Taipei College of Nursing, 365 Ming Der Road, Pei-tou 11211, Taipei, Taiwan, Republic of China) **Jasmultiside, a new secoiridoid glucoside from Jasminum multiflorum.** *Journal of Natural Products*, v. 54(4): p. 1087-1091 , 1991 (7 ref, Eng).

A new secoiridoid glucoside, jasmultiside, was isolated from the aerial parts of *J.multiflorum*. The structure of the new compound was established on the basis of spectral analysis and chemical correlations.

**9201-0372** Chen, Y.J., Zhang, S.L., Wang, Z.X. , Lu, Y.J., Xu, S.X. , Yao, X.S. , Cui, C.B., Tezuka, Y., Kikuchi, T.* , Ogihara, Y., Tadahiro, T.(Shenyang College of Pharmacy, Shenyang 110015, China) **Isolation and elucidation of a new minor saponin from the leaves of Panax ginseng C. A. Meyer.** *Acta Pharmaceutica Sinica*, v. 25(5): p. 379-381, 1990 (3 ref, Chi, Eng).

The structure of a new saponin isolated from the leaves of *P.ginseng* was elucidated on the basis of chemical evidences and spectral data. The saponin was named as ginsenoside-La.

**9201-0373** Chen, Y.S.(Department of Chemistry, Yunnan University, Kunming 650091, China) **Studies on lactone constituents from Boennighausenia sessilicarpa Levl.** *Acta Pharmaceutica Sinica*, v. 24(4): p. 260-263, 1989 (5 ref, Eng, Chi).

Two compounds have been isolated from the ether extract of *B.sessilicarpa*. On the basis of physico-chemical constants, IR, NMR and MS, they were identified as shijiaocaolactone A and rutamarin, the former being a new compound.

**9201-0374** Chen, Z.N., Xu, P.J.(Department of Chemistry, Shanghai Second Medical University, Shanghai 200 025, China) **Studies on triterpenoids of Populus yunnanensis Dode.** *Acta Pharmaceutica Sinica*, v. 25(4): p. 307-310, 1990 (14 ref, Chi, Eng).

Three triterpenoids (I, II and III) were isolated from the roots of *P.yunnanensis*. Compound I and III were identified as friedelin and 21alpha-hydroxyfriedelan-3-one and

compound II as 21alpha-acetoxyfriedelan-3-one which is a new triterpenoid. 13C NMR data of II showed that the presence of an alpha-acetoxy group at C-21 does not affect the boat conformation of ring E similar to the results in the study of some other D:A-friedo-oleananes.

**9201-0375** Christensen, L.P., Lam, J. , Thomasen, T.(Department of Organic Chemistry, University of Aarhus, DK-8000 Aarhus C, Denmark) **Polyenes from Centaurea scabiosa.** *Phytochemistry*, v. 30(10): p. 3457-3458, 1991 (5 ref, Eng).

The flower heads of *C.scabiosa* afforded in addition to compounds previously isolated from this plant five homologous isovalerate tetraene esters, with chain length varying from C14 to C18.

**9201-0376** Coskun, M.(Ankara Universitesi, Eczacilik Fakultesi, Ankara, Turkey) **HPLC analysis of the main anthraquinones from some Rhamnus species growing in Anatolia.** *Turkish Journal of Pharmacy*, v. 1(1): p. 25-32, 1991 (6 ref, Tur, Eng).

anthraquinones, alatermin, emodin, physcion and chrysophanol were isolated from *R.fallax*, *R.alaternus*, *R.kayacikii* and *R.oleoides* spp. *graecus* growing in Turkey.

**9201-0377** Craveiro, A.A., Alencar, J.W. , Matos, F.J.A., Machado, M.I.L.(Universidade Federal do Ceara, Laboratorio de Produtos Naturais 60450 Fortaleza CE, Brasil) **Essential oil of Zanthoxylum gardneri Engl. a new source of nerolidol.** *Journal of Essential Oil Research*, v. 3(5): p. 371-372 , 1991 (6 ref, Eng).

Steam distillation of leaves of the Brazilian shrub *Z.gardneri*gave an essential oil in 0.3 percent yield.GC/MS of the oil revealed the presence of (E)-nerolidol (81.5 percent) as the major component. Six other sesquiterpenoid constituents were also identified in the oil.

**9201-0378** Cui, B.L., Lu, Y.R., Wei, L.X.(Department of Pharmacy, Beijing College of Traditional Chinese Medicine, Beijing 100 013, China) **Studies on chemical constituents of Astragalus complanatus R.Br.** *Acta Pharmaceutica Sinica*, v. 24(3): p. 189-193, 1989 (8 ref, Eng, Chi).

Eight compounds were isolated from 80 percent ethanolic extract of Sha-Yuan-Zi seeds of *A.complanatus*. Their structures have been identified by spectroscopic and chemical methods. Two of them are new and named as neocomplanoside and myricomplanoside respectively. All the compounds were obtained from this species for the first time.

**9201-0379** Dabi-Lengyel, E., Jambor, E., Danos, B., Tetenyi, P. (Research Institute for Medicinal Plants, H-2011 Budakalasz, PB 11, Hungary) **Chemical composition and biological activity of the Rumex crispus L. crop.** *Herba Hungarica*, v. 30(1-2): p. 91-97, 1991 (10 ref, Eng, Hun).

Two proanthocyanidins were isolated by layer and column chromatography from the purified 50 percent aqueous-methanolic extract of *R.crispus* (crisped dock). After the acidic decomposition of the two proanthocyanidins, cyanidin and (+)catechin, (-)epicatechin components were identified. The results obtained in inhibition of phosphodiesterase activity, suggest that the stable derivatives of the isolated compounds can be considered as potential agents for the inhibition of platelet aggregation.

**9201-0380** Das, B., Chakravarty, A.K.(Indian Institute of Chemical Biology, Calcutta 700 032, WB, India) **Ecliptal, a new terthienyl aldehyde from Eclipta alba.** *Indian Journal of Chemistry*, v. 30B(11): p. 1052-1053 , 1991 (10 ref, Eng).

The structure of eliptal, a new terthienyl aldehyde, isolated from *E.aliba* has been deduced from spectral and chemical evidence as alpha-terthienyl-2-aldehyde.

**9201-0381** Daulatabad, C.D., Hosamani, K.M.(Department of Chemistry, Karnatak University, Dharwad 580003, Karnataka, India) **Unusual fatty acids in Brunfelsia americana seed oil: A rich source of oil.** *Journal of The American Oil Chemists' Society*, v. 68(8): p. 608-609, 1991 (16 ref, Eng).

The seed oil of *B.americana* was found to contain ricinoleic acid (5.0 percent) and cyclopropenoid fatty acids (which exhibit cocarcinogenic properties) such as malvalic (1.1 percent) and sterculic (1.4 percent). Palmitic acid (9.7 percent) is the major component amongst the saturated acids, with smaller amounts of myristic (2.1 percent) and stearic (5.0 percent). The unsaturated fatty acids are oleic (16.9 percent) and linoleic (58.8 percent).

**9201-0382** De Pooter, H.L., Schamp, N.M. , Aboutabl, E.A., El Tohamy, S.F., Doss, S.L.(Laboratory of Organic Chemistry, Faculty of Agricultural Sciences, State University of Gent, Coupure Links 653, B-9000 Gent, Belgium) **Essential oils from the leaves of three Pistacia species grown in Egypt.** *Flavour and Fragrance Journal*, v. 6(3): p. 229-232 , 1991 (17 ref, Eng).

Essential oils of leaves of *P.khinjuk*, *P.chinensis* and *P.lentiscus*, prepared by hydrodistillation, and studied by GC and GC-MS, showed qualitative and quantitative differences. All three were found to be rich in monoterpene hydrocarbons. In *P.lentiscus* 4 percent sesquiterpene alcohols were found, and no monoterpene alcohols, whereas

in *P.khinjuk* and *P.chinensis* 16 percent and 8 percent monoterpene alcohols respectively were detected, and no sesquiterpene alcohols.

**9201-0383** Delgado, G., Rios, M.Y.(Instituto de Quimica de la Universidad Nacional Autonoma de Mexico, Circuito Exterior, Ciudad Universitaria, Coyacan, 04510 Mexico, D.F) **Monoterpenes from Chrysactinia mexicana.** *Phytochemistry*, v. 30(9): p. 3129-3131, 1991 (19 ref, Eng).

Three new monoterpenes, (4S)-7-acetoxypiperitone, (4S)-7-hydroxypiperitone and (4S,6R)-6-hydroxypiperitone were isolated from aerial parts of the medicinal plant *C.mexicana*, together with (4S)-piperitone and (3S,4S,6R)-3,6-dihydroxypiperitone. (4S)-7-Acetoxypiperitone and (4S)-piperitone showed toxicity to *Artemia salina*.

**9201-0384** Ding, L.S., Chen, W.X.(Chengdu Institute of Biology, Academia Sinica, Chengdu 610 015, China) **Studies on the chemical constituents of Aconitum campylorrhynchum.** *Acta Pharmaceutica Sinica*, v. 25(6): p. 441-444, 1990 (4 ref, Chi, Eng).

Six compounds were isolated from the root of *A.campylorrhynchum*. One of them is a new alkaloid. It has been elucidated as 8-acetyldolaconine by means of IR,MS,1H and 13CNMR with DEPT,CH-COSY techniques and on the basis of identification with aconosine by saponification. The other five compounds were identified as dolaconine, aconosine, beta-sitosterol, palmitic acid and p-coumaric acid.

**9201-0385** Ding, L.S., Chen, W.X.(Chengdu Institute of Biology, Academia Sinica,Chengdu 610 015, China) **Diterpenoid alkaloids from Delphinium kamaonense var. glabrescens.** *Acta Pharmaceutica Sinica*, v. 25(6): p. 438-440, 1990 (5 ref, Chi, Eng).

A new and a known diterpenoid alkaloid have been isolated from the root of *D.kamaonense* var.*glabrescens*. The chemical structure of the new alkaloid, named glabredelphinine, was established as 2(3)-dehydro-6-demethyl-18-demethoxy-delcosine by IR,MS,1HNMR and 13CNMR spectral data. The known one was identified as tatsiensine. They were isolated from this plant for the first time.

**9201-0386** Ding, Y., Yang, C.R.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Steroidal saponins from Asparagus filicinus.** *Acta Pharmaceutica Sinica*, v. 25(7): p. 509-514, 1990 (8 ref, Chi, Eng).

Three new steroidal saponins, aspafilioside A,B and C together with a known saponin 22, methoxy ASP-IV and beta-ecdysone were isolated from the roots of *A.filicinus*. Their structures were established by spectral and chemical methods.

**9201-0387** Djordjevic, S., Gorunovic, M.*(Institut de Pharmacognosie, Faculte de Pharmacie, 11000 Belgrade, Rue Dr Subotica 8, Pf. 146, Yougoslavie) **Study on Sophora japonica L. as a source of rutoside.** *Herba Hungarica*, v. 30(1-2): p. 11-16, 1991 (9 ref, Fre, Hun).

Only title translated.

**9201-0388** Doganca, S., Uygur, A.(Marmara Universitesi, Eczacilik Fakultesi, Istanbul, Turkey) **Chemical investigations on anthraquinones of Rubia davisiana Ehrend.** *Turkish Journal of Pharmacy*, v. 1(1): p. 17-24, 1991 (17 ref, Tur, Eng).

Seven known and one new anthraquinones were isolated from the roots of *R.davisiana*. The structures of all compounds were determined by spectral and chemical methods.

**9201-0389** Drewes, S.E., Mashimbye, M.J. , Field, J.S., Ramesar, N. (Department of Chemistry, University of Natal, Pietermaritzburg 3200, South Africa) **11,11-Dimethyl-1,3,8,10-tetrahydroxy-9-methoxypeltogynan and three pentacyclic triterpenes from Cassine transvaalensis.** *Phytochemistry*, v. 30(10): p. 3490-3493, 1991 (20 ref, Eng).

From the root bark of *C.transvaalensis* a new peltogynoid, (+)-11,11-dimethyl-1,3,8,10-tetrahydroxy-9-methoxypeltogynan was obtained along with three pentacyclic triterpenes, canophyllol, canophyllal and 6beta-hydroxy-lup-20(30)-en-3-one. The latter was fully characterized by X-ray analysis and high resolution NMR. The carbohydrate galactitol was also present in unusually high concentration.

**9201-0390** Ekundayo, O., Ajani, F. , Seppanen-Laakso, T., Laakso, I.(Department of Chemistry, University of Ibadan, Ibadan, Nigeria) **Volatile constituents of Psidium guajava L. (guava) fruits.** *Flavour and Fragrance Journal*, v. 6(3): p. 233-236 , 1991 (15 ref, Eng).

The chemical composition of the volatile oil of guava fruits from trees grown in Nigeria was investigated by gas chromatography and gas chromatography-mass spectrometry. A total of 25 compounds accounting for 80 percent of the oil were identified. Free fatty acids (mainly lauric and myristic acids) were the most abundant group of constituents (34 percent). Large amounts of beta-caryophyllene and oxygen-containing sesquiterpenes (25 percent)

were also typical for Nigerian guava. Caryophylladienols are reported as guava volatiles for the first time.

**9201-0391** El-Hafiz, M.A.A.(Pharmacognosy Department, Faculty of Pharmacy, Assiut University, Assiut, Egypt) **Aliphatic hydroxyketones from Crinum augustum.** *Phytochemistry*, v. 30(9): p. 3127-3129, 1991 (13 ref, Eng).

Three new compounds isolated from the bulbs of *C.augustum* have been characterized as 5-hydroxyhexacosan-9-one, 5-hydroxyoctacosan-9-one and 5-hydroxytriacontan-9-one by spectral data and chemical studies. Methyl palmitate, palmitic acid and stearic acid have also been isolated and identified.

**9201-0392** Engelhardt, A., Langhammer, L.(Institut fur Pharmakognosie und Phytochemie der Frien Universitat, Berlin ,Germany) **A pharmacognostic-phytochemical study on Corylus avellana.** *Scientia Pharmaceutica*, v. 59(2): p. 139-148, 1991 (14 ref, Eng).

Isolation and structure elucidation of dimeric proanthocyanidins is described: (+)-gallocatechin-(4alpha-8)-(+)-gallocatechin from folia coryli avellanae, (+)-gallocatechin-(4alpha-8)-(+)-catechin, from folia and cortex coryli avellanae, procyanidin B3 from folia cortex coryli avellanae, procyanidin B1 from cortex coryli avellanae, (+)-gallacatechin-(4alpha-8)-(-)-epigallocatechin from Ostrya virginiana. In folia Hamamelidis (+)-gallocatechin-(4alpha-8)-(+)-catechin and procyanidin B3 were analytically proved.

**9201-0393** Enmou, D., Nahrstedt, A.(Institute Fur Pharmazeutische Biologie Und Phytochemie Der Westfalischen Wilhems-Universitat, Hittorfsr. 56, D-4400 Munster, Federal Republic of Germany) **Chemical physiological, and toxicological aspects of the essential oil of some species of the genus Bystropogan.** *Planta Medica*, v. 57(4): p. 347-351, 1991 (33 ref, Eng).

The Composition of *B.plumosus,B.organfolius* var *palmensis*, *B.wildpretti*, *B.maderensis*, and *B.canariensis* var *smithianus* were studied by and GLC/MS. The first four species provide relatively similar oils characterized by monoterpene ketones as the main constituents while the last species is quiet different with main constituents consisting of mono- sesquiterpene hydrocarbons. In *B.plumosus] the ontogenetic variation of the monoterpene ketones was studied for a period of four years.During this time the behaviour of pulegone was inversely correlated with that of menthone and isomenthone. Pulegone was the most active compound of the monoterpene ketones in antimicrobial test.*

**9201-0394** Epstein, W.W., Klobus, M.A., Edison, A.S.(Department of Chemistry, University of Utah, Salt Lake City, Utah 84112, USA) **Irregular monoterpene constituents of Artemisia tridentata cana. The isolation, characterization, and synthesis of two new chrysanthemyl derivatives.** *Journal of Organic Chemistry*, v. 56(14): p. 4451-4456 , 1991 (26 ref, Eng).

The neutral pentane extract of the leaves and flower heads of *A.tridentata cana* has been found to contain two new naturally occurring chrysanthemyl derivatives in addition to several previously characterized monoterpenes. The structures of these compounds have been established. In the process of establishing these structures it has been found that lavandulyl skeletal artefacts were formed.

**9201-0395** Fang, H.J., Shang, T.M.*, Xiao, P.G., Pu, Q.L.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Studies on chemical constituents of the essential oil of Cyclorhiza waltonii.** *Acta Pharmaceutica Sinica*, v. 25(7): p. 534-537, 1990 (5 ref, Chi, Eng).

Essential oil obtained from the rhizome of *C.waltonii* by steam distillation afforded fifteen constituents. Of these, the content of ten compounds was higher than 2 percent. They are; alpha-pinene, sabinene, alpha-erpinene, p-cymene, beta-phellandrene, gamma-terpinene, terpinolene, terpineo-4-ol, cis-caryophyllene, duryl aldehyde and isoduryl aldehyde. The oil was found to be composed of not only monterpenes and sesquiterpenes but also alcohols and aldehydes. Duryl aldehyde and isoduryl aldehyde, are not common in volatile oils.

**9201-0396** Fang, J.M., Wang, K.C., Cheng, Y.S.*(Department of Chemistry, National Taiwan University, Taipei, Taiwan 10764, Republic of China) **Steroids and triterpenoids from Rosa laevigata.** *Phytochemistry*, v. 30(10): p. 3383-3387, 1991 (20 ref, Eng).

An acetone extract of aerial parts of *R.laevigata* was found to contain 16 components, including derivatives of ursolic, euscaphic and oleanolic acids as well as glucosides of sterols. Among them, 2alpha-methoxyursolic acid, 11alpha-hydroxytormentic acid, tormentic acid 6-methoxy-beta-glucopyranosyl ester and stigmasta-3alpha,5alpha-diol 3-O-beta-D-glucopyranoside are new compounds. Their structures were established by chemical and spectral methods.

**9201-0397** Fang, J.N., Zhang, Z.H., Liu, B.N.(Shanghai Institute of Materia Medica, Academia Sinica, Shanshai 200031, China) **Chemical studies on polysaccharide of Achyranthes bidentata.** *Acta Pharmaceutica Sinica*, v. 25(7): p. 526-529, 1990 (9 ref, Chi, Eng).

A peptide-polysaccharide, ABAB was isolated from *A.bidentata*.It was shown to be homogeneous by HPLC and optical rotation analysis. It composed of D-glucuronic acid, D-galactose, D-galacturonic acid, L-arabinose and L-rhamnose in molar ratio of 12:2:3:1:1. Reduction of carboxyl groups, methylation analysis, periodate oxidation, Smith degradation and IR analysis showed that ABAB possesses a main chain composed of (1to4)-D-glucuronic acid and (1to4)-D-galacturonic acid residues. The non-reducing terminal residues in the side chains were L-arabinose and L-rhamnose. ABAB contained 24.1 percent of peptides composed of glycine, glutamic acid, aspartic acid and serine.

**9201-0398** Feliciano, A.S., Miguel Del Corral, J.M. , Gordaliza, M. , Castro, A.(Departamento de Quimica Organica y Farmaceutica, Facultad de Farmacia, 37007 Salamanca, Spain) **Acidic and phenolic lignans from Juniperus sabina.** *Phytochemistry*, v. 30(10): p. 3483-3485, 1991 (12 ref, Eng).

Along with some known compounds, two new lignans, a naphthalene derivative named junaphtoic acid and (-)-3-O-demethylyatein, were isolated from the acidic fraction of a n-hexane extract from the leaves of *J.sabina*. Their structures were established by spectrosocpic and chemical means.

**9201-0399** Finger, A., Engelhardt, U.H., Wray, V.(Institut fur Lebensmittelchemie der Technischen Universitat, Pockelsstrasse 4, D-3300 Braunschweig, FRG) **Flavonol glycosides in tea- kaempferol and quercetin rhamnodiglucosides.** *Journal of the Science of Food and Agriculture*, v. 55(2): p. 313-321, 1991 (15 ref, Eng).

Quercetin and kaempferol rhamnodiglucosides are characteristic compounds of *Camellia sinensis*. Their structures were determined as quercetin- and kaempferol-3-O-[beta-D-glucopyranosyl-(1-3)-alpha-L-rhamnopyranosyl-(1 to6)-beta-D-glucopyranosides]. Reversed phase HPLC methods for preparative isolation and analytical separation of both compounds were developed. The structural elucidation of the compounds by means of NMR spectroscopy, fast atom bombardment MS and GC-MS of the sugar moieties is described. Black tea contains 0-0.95 g/kg 95g/kg quercetin rhamnodiglucoside and 0.05-1.25 g/kg 1.25g/kg kaempferolrhamnodiglucoside.

**9201-0400** Fleisher, Z., Fleisher, A.(Crompton & Knowles Corporation, 1595 MacArthur Boulevard, Mahwah, NJ 07430, USA) **The essential oils of ethrog (Citrus medica L. var. ethrog Engl.). Aromatic plants of the holy land the Sinai, Part VI.** *Journal of Essential Oil Research*, v. 5(3): p. 377-379, 1991 (4 ref, Eng).

The essential oils of the fruit and leaves of *C.medica* var *ethrog* were examined by GC/MS and ninety-four constituents were identified. Limonene (81.34 percent, 37.93 percent), geranial (4.24 percent, 8.22 percent), geraniol (0.24 percent, 6.21 percent), neral (2.55 percent, 5.11 percent) and nerol (0.22 percent, 4.83 percent) were found to be major constituents of both oils respectively. Beta-ionone, although present in the peel oil at a low concentration, is thought to be responsible for the distinctive aroma of the ethrog fruit.

**9201-0401** Fonseca, G., Rodriguez-Hahn, L.* , Tablero, M., Rodriguez, A., Arreguin, B.(Instituto de Quimica, Universidad Nacional Autonoma de Mexico, Circuito Exterior, Ciudad Universitaria, Coyoacan, 04510 Mexico, D.F) **Labriformin, a cardiac glucoside from Asclepias glaucescens.** *Journal of Natural Products*, v. 54(3): p. 860-862 , 1991 (11 ref, Eng).

Labriformin(1), a known cardenolide, was isolated from the latex of *A.glaucescens*. Its identity was established by comparison of the spectroscopic data with those reported. The 13C-NMR spectrum of 1 is presented. The major constituents of the latex were identified as a mixture of taraxasterol and psi-taraxasterol acetates.

**9201-0402** Fournier, G., Pages, N., Fournier, C., Callen, G. (Laboratoire de Pharmacognosie, Faculte de Pharmacie, 5 Rue J.-NB. Clement, F-92296 Chatenay-Malabry Cedex, France) **Contribution to the study of the essential oil of various cultivars of Juniperus sabina.** *Planta Medica*, v. 57(4): p. 392-393, 1991 (12 ref, Eng).

The essential oils of the different savin *J.sabina* cultivars studied were qualitatively similar. But noticeable differences in the main constituents were noticed. Sabinene content varied from 18 percent to 41 percent and sabinyl acetate from 19 percent to 53 percent. The cultivar Blue Danube showed inverse proportions of sabinene (40.8 percent) and sabinyl acetate (19.1 percent).

**9201-0403** Gautam, R.K., Mukharya, D.K.(Chemical and Toxicological Laboratory, Department of Criminology and Forensic Science, Dr. Harisingh Gour University, Sagar 470 003, MP, India) **beta-Amyrin-3-O-beta-D-glucopyranosyl(1 to 4)-O-beta-D-xylopyranoside from the stem of Euphorbia antiquorum (Linn.).** *Indian Journal of Physical and Natural Sciences* , v.9(Sec.A) April: p. 8-9, 1989 (Recd. 1991, 7 ref, Eng).

The title saponin has been isolated from the ethanolic extract of the stem of *E.antiquorum and identified. NSL, New Delhi.*

**9201-0404** Gonzalez, A.G., Grillo, T.A., Aguiar, Z.E., Luis, J.G.* , Callet, J. , Rivera, A.(Centro de Productos Naturales Organicos Antonio Gonzalez, Universidad de La Laguna, Carretera La Esperanza 2. La Laguna, 38206 Tenerife, Canary Islands, Spain) **Minor sesquiterpene lactones from Salvia palaefolia.** *Phytochemistry*, v. 30(10): p. 3462-3464, 1991 (3 ref, Eng).

Five minor eudesmane constituents of *S.palaefolia* were isolated from the same extract which had earlier yielded the two fully characterized eudesmanolides. The five new natural compounds were identified by spectral studies and comparison with known substances.

**9201-0405** Grande, M., Macias, M.J., Mancheno, B., Segura, M., Zarzo, A.(Departamento de Quimica Organica, Facultad de Ciencias Quimicas, Universidad de Salamanca, Plaza de los Caidos 1, E-37008 Salamanca, Spain) **New kaurane diterpenoids from the aerial parts of Distichoselinum tenuifolium.** *Journal of Natural Products*, v. 54(3): p. 866-869 , 1991 (17 ref, Eng).

The neutral components of the hexane extract from aerial parts of *D.tenuifolium* were identified as ent-kaurene, ent-kauren-3beta-ol, ent-15alpha-angeloyloxykaur-16-en-3beta-ol, the main secondary metabolite previously isolated from the roots of this plant, and two new natural kaurene derivatives, ent-15-alpha-angeloyloxykaur-16-ene-3beta-, 9-diol and ent-kaur-16-ene-3beta, 15alpha-diol.

**9201-0406** Greenaway, W., English, S., May, J. , Whatley, F.R. (Department of Plant Sciences, South Parks Road, Oxford OX1 3RB, UK) **Analysis of phenolics of bud exudate of Populus sieboldii by GC-MS.** *Phytochemistry*, v. 30(9): p. 3005-3008, 1991 (24 ref, Eng).

Analysis by GC-MS separated 50 components of bud exudate from *P.sieboldii*of which 36 were phenolics is reported.The bulk of the bud exudate (66.7 percent) was composed of the flavanone naringenin and its methyl ethers sakuranetin and isosakuranetin, together with their corresponding chalcones. These flavanones are minor components (less then 1 percent) in bud exudate of poplars from other Sections.

**9201-0407** Gu, L.H., Yan, S.Q., Li, X. , Zhu, T.R.(Research Department of Natural Drugs, Shenyang College of Pharmacy, Shenyang 110015, China) **Studies on antibacterial constituents from Gerbera anandria (L.) Sch Bip. IV.** *Acta Pharmaceutica Sinica*, v. 24(10): p. 744-748 , 1989 (5 ref, Chi, Eng).

Thirteen compounds have been isolated from *G.anandria*. Among them, three new compounds were elucidated by chemical correlations and spectral analyses. They are 3,8-dihydroxy-4-methoxy-coumarin; 3,8-dihydroxy-4-methoxy-2-oxo-2H-1-benzopyran-5-carboxylic acid and 5,8-dihydroxy-7-(4-hydroxy-5-methyl-coumarin-3-) coumarin.

**9201-0408** Gupta, S., Ali, M., Alam, Si(Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi 110062, India) **An antiinflammatory agent from Lawsonia inermis (henna) stem bark [No. P-1.111, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 237, 1991 (Eng).

A new needle shaped orange coloured naphthalene derivative (C11H8O3, mp 67-8 degrees C)has been isolated from the stem bark of the plant. It has been identified as 2-hydroxy-6-methyl-1,4-naphthaquinone. It showed antiinflammatory activity against carrageenan induced acute paw oedema in rats.

**9201-0409** Hagedorn, M.L., Brown, S.M.(International Flavors and Fragrances, Research and Development, 1515 Highway 36, Union Beach, NJ, USA) **The constituents of cascarilla oil (Croton eluteria Bennett).** *Flavour and Fragrance Journal*, v. 6(3): p. 193-204 , 1991 (16 ref, Eng).

Commercial cascarilla oil was fractionated by liquid chromatography on silica and alumina, and by preparative gas chromatography. On the basis of 1H-NMR, 13C-NMR, GC-MS and GC-FTIR data, 143 constituents were identified (75 percent of the oil). Five sesquiterpene hydrocarbons, a non-terpenoid ester and ketone , two eudesmane alcohols, one sesquiterpene phenol and a clerodane diterpene were new compounds. The stereochemistry of beta-cedren-10-ol, previously reported in cascarilla, was also determined.

**9201-0410** Hamilton-Kemp, T.R., Longhriu, J.H. , Archbold, D.D., Andersen, R.A. , Hilderband, D.F.(Department of Horticulture, USDA, University of Kentucky, Lexington, Kentucky 40546, USA) **Inhibition of pollen germination by volatile compounds including 2-hexenol and 3-hexenal.** *Journal of Agricultural and Food Chemistry*, v. 39(5): p. 952-956, 1991 (24 ref, Eng).

Vapors emitted from macerated tomato leaves inhibit germination of apple pollen. Compounds from the leaves were identified from gas chromatography- Mass spectroscopy. Authentic samples of the tomato leaf compounds were bioassayed for inhibition of germination. The lipoxygenase-lyase-derived-volatiles, (Z)-3-hexenal and (E)-2-hexenal, were important factors in the inhibition of pollen germination. Phenylpropanoid derived compounds can also inhibit germination, but non-polar compounds tested such as ter-

pene hydrocarbons, had little effect on apple pollen germination.

**9201-0411** Han, G.Q., Wei, L.H., Li, C.L. , Qiao, L., Jia, Y.Z., Zheng, Q.T.*(School of Pharmaceutical Sciences, Beijing Medical University, Beijing 100083, China) **The isolation and identification of PAF inhibitors from Piper wallichii (Miq.) Hand-Mazz and Piper hancei Maxim..** *Acta Pharmaceutica Sinica*, v. 24(6): p. 438-443, 1989 (7 ref, Chi, Eng).

The Platelet activating factor (PAF) inhibitors like kadsurenone (1), denudatin B(II), and N-isobutyl-deca-trans-2-trans-4-dienamide (III) were isolated from *P.wallichii* and *P.hancei*. Using PAF induced platelet aggregation as a guide, a new neolignan hancinone D (IV) was isolated from *P.hancei*. By X-ray analysis it was identified as a racemate. Another new neolignan named wallichinine (V), identified as an analogue of (IV), along with the known compounds hancinone C (VI), galgravin(VII), dihydropiperlonguminine (VIII) and crotepoxide (IX) were isolated from (P.wallichii. The structure determination was based upon spectroscopic analysis. All the compounds were isolated for the first time from both plants. In the test of platelet aggregation caused by PAF, I, II, V, VI, VII showed inhibitory activity, whereas III, IV, VII, IX showed no activity.

**9201-0412** Han, S.D., Jiang, D.H., Wang, J.L.(Nanjing Institute of Materia Medica, Nanjing 210009, China) **Study of quality of gossypol recrystalized from chloroform.** *Acta Pharmaceutica Sinica*, v. 24(6): p. 465-471, 1989 (8 ref, Chi, Eng).

Samples of gossypol were dried at different temperatures at reduced pressure and stored under room temperature for different times. They were identified and determined by melting point, TLC, UV and IR spectrophotometry, elementary and thermo-gravimetric analysis, X-ray diffraction, and also for the content of gossypol. The results of these tests proved gossypol to be solvated with chloroform at low temperature. This phenomenon decreased gradually with increase of drying temperature or storage time, and the content of gossypol increased accordingly. The presence of chloroform in the crystal interferes with the purity of gossypol. Thus, it is necessary to identify the presence of chloroform with oxygen flask combustion-mercurimetry beforehand.

**9201-0413** Hao Zhigang, Liu Jinhan, Zho Shouxun, Miao Zhenchun (Department of Phytochemistry, China Pharmaceutical University, Nanjing 210 009, China) **A diterpenoid alkaloid from Aconitum alboviolaceum.** *Phytochemistry*, v. 30(10): p. 3494-3496, 1991 (4 ref, Eng).

A new diterpenoid alkaloid, named albovinoitine, was isolated from whole plant of *A.alboviolaceum*. Its structure was elucidated by spectral analysis and was shown to be a *seco*-N-6- N-20 hetisine-type diterpenoid alkaloid. Albovionitine is the first example of a diterpenoid alkaloid bearing a hydroxyl group at C-18 and a *seco*-N-20 functionality. Four known diterpenoid alkaloids were also isolated and identified as ajacine, avadharidine, lycoctonine and lycaconitine.

**9201-0414** Hatano, T., Fukuda, T., Liu, Y.Z. , Noro, T., Okuda, T.* (Faculty of Pharmaceutical Sciences, Okayama University, Tsushima, Okayama 700, Japan) **Phenolic constituents of licorice.IV. Correlation of phenolic constituents and licorice specimens from various sources and inhibitory effects of licorice extracts on xanthine oxidase and monoamine oxidase.** *Yakugaku Zasshi*, v. 111(6): p. 311-321, 1991 (Jap, Eng).

The roots and/or rhizomes of *Glychyrrhiza uralensis*, *G.glabra* and *G.inflata*, and commercial licorice specimens from various regions or countries were analyzed by high-performance liquid chromatography(HPLC), and classified into three types based on their phenolic constituents. Extracts of some licorice specimens inhibited 40-56 percent of the xanthine oxidase activity at the concentration of 30 microg/ml. Extracts of some licorice specimens also showed inhibitory effects on monoamine oxidase (44-64 percent inhibition, at the concentration of 30 microg/ml), which were slightly weaker than that of harmane hydrochloride.

**9201-0415** Hayashi, T., Asano, S., Mizutani, M., Takeguchi, N., Kojima, T., Okamura, K. , Morita, N.(Faculty of Pharmaceutical Sciences, Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama 930-01, Japan) **Scopadulciol, an inhibitor of gastric H+, K+-ATPase from Scoparia dulcis, and its structure-activity relationships.** *Journal of Natural Products*, v. 54(3): p. 802-809 , 1991 (21 ref, Eng).

A new tetracyclic diterpenoid, scopadulciol {3}, together with 6-methoxybenzoxazolinone, glutinol, and acacetin was isolated from the 70 percent EtOH extract of *S.dulcis* collected in Taiwan. Its structure was elucidated to be 6beta-benzoyl-12-methyl-13-oxo-9(12)a,9(12)b-dihomo-18-podocarpanol on the basis of spectral data. It mildly inhibited hog gastric H+,K+-ATPase. Examination of the inhibitory activities of derivatives of scopadulcic acid B {2}, including 3, revealed that methylation of the carboxyl group and introduction of an acetyl group or oxime at C-13 or C-18 markedly enhanced the inhibitory activity, while debenzoylation reduced, the activity.

**9201-0416** He, Z.Q., Findlay, J.A.*(Department of Chemistry, University of New Brunswick, New Brunswick, Canada E3B 6E2) **Constituents of Astragalus membranaceus.** *Journal of Natural Products*, v. 54(3): p. 810-815 , 1991 (18 ref, Eng).

Two glycosides have been isolated from *A.membranaceus* var. *mongholicus* and their structures have been determined to be 3-O-beta-D-xylopyranosyl-25-O-beta-D-glucopyranosyl-cycloastragenol and (3R)-(-)-7,2'-dihydroxy-3', 4'-dimethyl isoflavan-7-O-beta-D-glucopyranoside by spectroscopic means and chemical transformations.

**9201-0417** He, Z.Q., Wang, B.Q.(National Institute for the Control of Pharmaceutical and Biological Products, Beijing 100 050, China) **Isolation and identification of chemical constitutents of Astragalus root.** *Acta Pharmaceutica Sinica*, v. 25(6): p. 694-698, 1990 (15 ref, Chi, Eng).

Ten constituents have been isolated from the alcoholic extract of *A.membranaceus* var *mongholicus* root. All of them were identified. Among them astraisoflavanin (3S-(-)-mucronulatol-7-O-D-glucopyranoside) is a new compound. Dimethyl 4,4'-dimethoxy-5,6,5',6'-dimethylenedioxybiphyenyl-2, 2'-dicarboxylate is a known synthetic compound, but it was first isolated from natural resource.

**9201-0418** Hedin, P.A., Phillips, V.A., Dysart, R.J.(Crop Science Research Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Mississippi State, Mississippi 39762, USA) **Volatile constituents from honeysuckle aphids, hyadaphis tataricae, and the honeysuckle, Lonicera spp.: Search for Assembling pheromones.** *Journal of Agricultural and Food Chemistry*, v. 39(7): p. 1304-1306, 1991 (12 ref, Eng).

Volatile fractions of the honeysuckle aphid, Hyadaphis tataricae (Aizenberg), and honeysuckle (*Lonicera* spp.) leaves and flowers were analyzed by GLC-MS. The aphids contained(E)-beta-farnesene, a pheromone known from other aphids. The aphids also contained 18 hydrocarbons and 4 ethyl esters, none of which were present in the plant. It is suggested that the ethyl ester may aid in the assembling of the aphids and the attack on them by their predators, several coccinellid beetles.

**9201-0419** Hemavathy, T.(Discipline of Convenience Foods and Confectionery, Central Food Technological Research Institute, Mysore 570013, Karnataka, India) **Lipid composition of Murraya koenigii seed.** *Journal of The American Oil Chemists' Society*, v. 68(9): p. 651-652, 1991 (18 ref, Eng).

Total seed lipids extracted from *M.koenigii* amounted to 4.4 percent of dry seeds. The total lipids consisted of 85.4 percent neutral lipids, 5.1 percent glycolipids and 9.5 percent phospholipids. Detailed composition of the different lipids is given and it appears to be similar to other seeds of Rutaceae. However, research on possible toxicity and economic feasibility for its utilization in various products should be conducted.

**9201-0420** Herderich, M., Winterhalter, P.(Lehrstuhl fur Lebensmittelchemie, Universitat Wurzburg, Am Hubland, 8700 Wurzburg, Germany) **3-Hydroxy-retro-alpha-ionol: A natural precursor of isomeric edulans in purple passion fruit (Passiflora edulis Sims).** *Journal of Agricultural and Food Chemistry*, v. 39(7): p. 1270-1274, 1991 (23 ref, Eng).

In a polar extract obtained from purple passion fruit (*P.edulis*) juice, capillary gas chromatography (HRGC), and coupled HRGC techniques, i.e. on-line mass spectrometry (HRGC-MS) and Fourier transform infrared spectroscopy (HRGC-FTIR), revealed for the first time the presence of 3-hydroxy-retro-alpha-ionol. The identification was verified by comparison of HRGC, HRGC-MS, and HRGC-FTIR data of the new natural product with those of an authentic reference compound synthesized from the known C13 keto alcohol, 3-oxo-alpha-ionol. Degradation studies carried out with 3-hydroxy-retro-alpha-ionol showed the easy formation of isomeric edulans under acidic conditions. Possible mechanisms for the formation of the odor active edulans, key flavor components of purple passion fruit juice, are discussed.

**9201-0421** Hethelyi, E., Tetenyi, P., Danos, B., Koczka, I. (Research Institute for Medicinal Plants, 2011 Budakalasz, PO Box 11, Hungary) **Phytochemical and antimicrobial studies on the essential oils of the Tanacetum vulgare clones by gas chromatography/mass spectrometry.** *Herba Hungarica*, v. 30(1-2): p. 82-90, 1991 (9 ref, Eng, Hun).

Chemical composition of the essential oils in *T.vulgare* clones was determined by GC/MS method at several populations collected from Hungarian localities. These essential oils are composed of some different and specific compounds (artemisia-ketone, umbellulone, piperitone, thujone, artemisia alkohol, borneol, camphor, chrysanthenyl acetate, terpenyl acetate, carveyl acetate, and davanone etc.). Thirty four chemovariants have been detected in Hungary. Multiplication of Gram positive micro-organisms was inhibited by *T.vulgare* oils in agar-diffusion experiments. Multiplication of fungi was totally inhibited by the agar-diffusion or by the atmospheric methods as well.

**9201-0422** Hirakura, K., Morita, M., Nakajima, K., Ikeya, Y., Mitsuhashi, H.(Research Institute for Biology and Chemistry, Tsumura & Co., 3586 Yoshiwara, Ami-machi, Inashiki-gun, Ibaraki, Japan) **Polyacetylenes from the roots of Panax ginseng.** *Phytochemistry*, v. 30(10): p. 3327-3333, 1991 (20 ref, Eng).

Five new polyacetylenes named ginsenoynes A, B, C, D and E were isolated from the hexane extract of the root of *P.ginseng*. These structures were determined by spectral and chemical methods.

**9201-0423** Hou, C.Y., Zhang, J.Q., Zhang, Y.M. , Liu, Y.L. (Institute of Medicinal Plant Development , Chinese Academy of Medical Sciences, Beijing 100094, China) **Studies on the chemical constituents of Piper macropodum C.DC.** *Acta Pharmaceutica Sinica*, v. 24(10): p. 789-792 , 1989 (7 ref, Chi, Eng).

From the ethanolic extract of the stem of *P.macropodum*, five components were isolated, a new compound and four known compounds. On the basis of spectroscopic analysis (IR, UV, MS, 1H NMR and 13C NMR) the structure of this new compound was elucidated as (2E,4E)-N-isobutyl-2,4-icosadienamide. The other four compounds were identified as piperine, piperyline, daucosterol and beta-sitosterol. All of them were isolated from this species for the first time.

**9201-0424** Hu, B.H., Liu, Y.L.(Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Beijing 100 094, China) **Studies on the structures of new flavonoids from the root of Scutellaria amoena.** *Acta Pharmaceutica Sinica*, v. 24(3): p. 200-206, 1989 (10 ref, Eng, Chi).

From the root of *S.amoena*, two new flavonoids (I,II) and six known flavonoids (III-VIII) were isolated. On the basis of spectroscopic analysis (UV, 1HNMR, 13C NMR, MS and CD) and chemical evidences, the structures of I and II were elucidated as (2S)-2',5,6'-trihydroxy-7-methoxyflavanone-2'-O-beta-D-glucopyranoside (I) and (2R, 3R)_2',3,5,7-tetrahydroxyflavanone (II) respectively. The other six known compounds were also identified.

**9201-0425** Hu, B.H., Liu, Y.L., Zhang, T. , Song, W.Z.(Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Beijing, 100094, China) **Studies on the structure of scuteamoenin from the root of Scutellaria amoena.** *Acta Pharmaceutica Sinica*, v. 25(4): p. 302-306, 1990 (7 ref, Chi, Eng).

A new flavanone and six known compounds (II to VII) were isolated from the roots of *S.amoena*. On the basis of spectroscopic analysis (UV, 1H NMR, 13C NMR, MS and CD) and chemical evidence, the structure of the new compound was elucidated as (2S)-2',5,6'-trihydroxy-7-methoxyflavanone and named scuteamoenin, the other six known compounds were identified as (2R,3R-3,5,7-trihydroxyflavanone, 2',3,5,6',7-pentahydroxyflavone, 2',5,7-trihydroxy-6-methoxyflavone, skullcaflavone II, chrysin and beta-sitosterol respectively. Six known compounds were obtained from this plant for the first time.

**9201-0426** Humpf, H.U., Winterhalter, P. , Schreier, P.(Lehrstuhl fur Lebensmittelchemie, Universitat Wurzburg, Am Hubland, D-8700 Wurzburg, Germany) **3,4-Dihydroxy-7,8-dihydro-beta-ionone beta-D-glucopyranoside: Natural precursor of 2,2,6,8-tetramethyl-7,11-dioxatricyclo[6.2.1.01,6]super script in DTPundec-4-ene(Riesling acetal) and 1,1,6-trimethyl-1,2-dihydronaphthalene in red currant (Ribes rubrum L.) leaves.** *Journal of Agricultural and Food Chemistry*, v. 39(10): p. 1833-1835, 1991 (11 ref, Eng).

A precursor of 2,2,6,8-tetramethyl-7,11-dioxatricyclo[6.2.1.01,6]undec-4-ene (Riesling acetal) and 1,1,6-trimethyl-1,2-dihydronaphthalene (TDN),3,4-dihydroxy-7,8-dihydro-beta-ionone beta-D-glucopyranoside was isolated from *R.rubrum* leaves. The steps of isolation comprised retention of the glycosides on Amberlite XAD-2 resin and subsequent prefractionation of the methanolic eluate by rotation locular countercurrent chromatography (RLCC). After acetylation and liquid chromatographic purification, characterization was made by means of LC-MS and NMR analyses.

**9201-0427** Humpf, H.U., Schreier, P.*(Lehrstuhl fur Lebensmittelchemie, Universitat Wurzburg, Am Hubland, D-8700 Wurzburg, Germany) **Bound aroma compounds from the fruit and the leaves of blackberry (Rubus laciniata L.).** *Journal of Agriculture and Food Chemistry*, v. 39(10): p. 1830-1832, 1991 (23 ref, Eng).

In the fruit 41 aglycons and in the leaves 32 bound aroma compounds were identified. Quantitative HRGC revealed 5.8 mg/kg of aglycons in the fruit, whereas 56.1 mg/kg were determined in the leaves. Major constituents comprised benzyl alcohol, benzoic acid, 3-hydroxy-7,8-dihydro-beta-ionol, (Z-)-3-hexen-1-ol, and the diastereomeric vitispiranes. Chiral evaluation of enzymatically liberated aroma compounds has also been carried out.

**9201-0428** Iinuma, M., Ohyama, M., Tanaka, T. , Mizuno, M., Hong, S.K.*(Department of Pharmacognosy, Gifu Pharmaceutical University, 6-1 Mitahora-higashi 5 chome, Gifu 502, Japan) **An isoflavanone from roots of Echinosophora koreensis.** *Phytochemistry*, v. 30(9): P. 3153-3154, 1991 (8 ref, Eng).

In addition to known phenolic compounds, medicarpin, maackiain, echinoisoflavanone and echinoisosophoranone, a new isoflavanone named kenusanone A was isolated from the roots of *E.koreensis*. The structure was determined to be 5'-geranyl-5,7,2',4'-tetrahydroxyisoflavanone by means of spectroscopic analysis.

**9201-0429** Iinuma, M., Ohyama, M., Tanaka, T. , Mizuno, M. (Department of Pharmacognosy, Gifu Pharmaceutical university, 6-1 Mitahora-higashi 5 chome, Gifu 502, Japan) **Two C-methylated flavonoid glycosides from the roots of Sophora leachiana.** *Journal of Natural Products*, v. 54(4): p. 1144-1146 , 1991 (6 ref, Eng).

5,7,4'-Trihydroxy-6-methylflavanone (poriol), its 7-O-beta-D-glucopyranoside (poriolin), and a new flavonol glycoside were isolated from the roots of *S.leachiana*. Spectroscopic analysis established the structure of the new flavonol to be 8-methylkaempferol-7-O-beta-D-glucopyranoside.

**9201-0430** Ishiguro, K., Nagata, S., Fukumoto, H., Yamaki, M., Takagi, S., Isoi, K.(Faculty of Pharmaceutical Sciences, Mukogawa Women's University, Koshien Kyuban-cho, Nishinomiya, Hyogo 663, Japan) **A flavanonol rhamnoside from Hypericum japonicum.** *Phytochemistry*, v. 30(9): p. 3152-3153, 1991 (10 ref, Eng).

A new flavanonol (2R,3R)-taxifolin-7-rhamnoside, from whole plant of *H.japonicum* has been isolated together with the known quercitrin and vincetoxicoside B. Their structures were elucidated using spectral techniques.

**9201-0431** Ishihara, M., Tsuneya, T., Uneyama, K.(Research Laboratories, Shiono Koryo Kaisha Ltd, Niitaka 5-17-75, Yodogawa-Ku, Osaka 532, Japan) **Guaiane sesquiterpenes from agarwood.** *Phytochemistry*, v. 30(10): p. 3343-3347, 1991 (5 ref, Eng).

Seven new sesquiterpenes, all of which have a guaiane skeleton, i.e.(-)-guaia-1(10),11-dien-15-ol, (-)-guaia-1(10), 11-diene-15-carboxylic acid, methyl guaia-1(10), 11-diene-15-carboxylate, (+)-guaia-1(10),11-dien-9-one, (-)-1,10-epoxyguai-11-ene, (-)-guaia-1(10),11-dien-15,2-olide and (-)-rotundone, have been isolated from *A.agallocha*. Their strunctures have been established on the basis of detailed spectroscopic analyses and synthesis.

**9201-0432** Itoh, A., Tanahashi, T., Nagakura, N.*(Kobe Women's College of Pharmacy, Higashinadaku, Kobe 658, Japan) **Six tetrahydroisoquinoline-monoterpene glucosides from Cephaelis ipecacuanha.** *Phytochemistry*, v. 30(9): p. 3117-3123, 1991 (16 ref, Eng).

From the crude drug 'ipecac' (dired root of *C. ipecacuanha*) six novel tetrahydroisoquinoline-monoterpene glucosides, 6-O-methylipecoside, ipecosidic acid, demethylalangiside, neoipecoside, 7-O-methylneoipecoside and 3,4-dehydroneoipecoside were isolated along with ipecoside, alangiside, sweroside and 7-dehydrologanin. The structures of new glucosides were determined by spectrosocpic and chemical means. The biogenesis of these glucosides is also discussed.

**9201-0433** Ji, X.D., Pu, Q.L., Garraffo, H.M. , Pannell, L.K.* (Guangxi Institute of Traditional Medical Pharmaceutical Sciences 20 Gu Cheng Road, Nanning, Guangxi, Peoples Republic of China) **Essential oils of the leaf, bark and branch of Cinnamomum burmannii Blume.** *Journal of Essential Oil Research*, v. 3(5): p. 373-375 , 1991 (3 ref, Eng).

Twenty-one compounds have been identified in essential oils from the leaf, bark and branches of *C.burmannii*. The main components were 1,8-cineole (6.9-52.9 percent), borneol (1.7-34.2 percent), camphor (0-9.8 percent), terpinen-4-ol (4.1-9.3 percent), and alpha-terpineol (6.4-13.0 percent), depending upon the plant part used to produce the oil.

**9201-0434** Jia, Q., Wang, B., Shu, Y.H. , Zhang, R.Y., Gao, C.Y.*, Qiao, L. , Pang, J.H.(College of Pharmacy, Beijing Medical University, Beijing 100 083, China) **The structure of glyuranolide, a new triterpene of Glycyrrhiza uralensis Fisch.** *Acta Pharmaceutica Sinica*, v. 24(5): p. 348-352, 1989 (9 ref, Eng, Chi).

Using a medium pressure liquid chromatographic system, a new triterpene lactone named glyuranolide [3beta, 22 alpha-dihydroxy-11-oxo-delta12-oleanene-27 alpha-methoxy carbonyl-29-oic acid (29, 22alpha-) lactone] was isolated from the crude sapogenins of *G.uralensis*. Its structure was elucidated by IR, UV, FAB-MS, and various NMR spectra (including NOE, BBD, INEPT, SR, COSY, NOESY etc.).

**9201-0435** Jia, S.S., Ma, C.M., Wang, J.M.(Department of Pharmacy, Medical College of Inner Mongolia, Huhehot 010059, China) **Studies on flavonoid constituents isolated from the leaves of Glycyrrhiza uralensis Fisch.** *Acta Pharmaceutica Sinica*, v. 25(10): p. 758-762 , 1990 (10 ref, Chi, Eng).

Four flavonoids were isolated from the alcoholic extract of the leaves of *G.uralensis*. On the basis of physicochemical properties and spectroscopic analysis their structures were elucidated as 3,5,7,3',4'-pentahydroxy-5'-isoprenylflavone(I), 3,6,7,3',4'-pentahydroxy-2'-isoprenylflavone(II) and

5,7,3',4'-tetrahydroxy-5'-isoprenyl-flavanone(III) and quercetin -3,3'-dimethylether(IV). Compounds I, II and III are new compounds and named uralenol, neouralenol and uralenin respectively. Compound IV was found in this genus for the first time. Compound III was shown to be the major constituent in the leaves.

**9201-0436** Jia, Z.J., Zhang, Z.P.(Institute of Organic Chemistry, Lanzhon University, Lanzhon 730000, People's Republic of China) **Taxanes from Taxus chinensis.** *Chinese Science Bulletin*, v. 36(14): p. 1174-1177 , 1991 (6 ref, Eng).

Structures of four minor taxane diterpenes isolated from air-dried stems and leaves of *T.chinensis* have been reported.

**9201-0437** Jia, Z.J., Chen, H.M.(Institute of Organic Chemistry, Lanzhou University, Lanzhou 730 000, Gansu Province, People's Republic of China) **Benzofuranosesquiterpenes from Ligularia virgaurea.** *Phytochemistry*, v. 30(9): p. 3132-3134, 1991 (5 ref, Eng).

Three new benzofuranosesquiterpenes, 2-(3'-pentenyl)-3,7-dimethylbenzofuran-1,4-dione, 1-hydroxy-2-(3'-pentenyl)-3,7-dimethylbenzofuran and 1-methoxy-2-(3'-pentenyl)-3,7-dimethylbenzofuran, were isolated from the rhizome of *L.virgaurea*, together with two known furanoeremophilanes, cacalol and 4alphaH-9-methoxyfuranoeremophilane.

**9201-0438** Jiang, D.Q., Pu, Q.L., Huang, P. , Huang, X.M., He, Y.Z. , He, C.H.* , Zheng, Q.T.(Guangxi Institute of Traditional Medical and Pharmaceutical Sciences, Nanning 530012, China) **Studies on the chemical constitutents of Curcuma kwangsiensis.** *Acta Pharmaceutica Sinica*, v. 24(5): p. 357-359, 1989 (3 ref, Eng, Chi).

A new sesquiterpene lactone named gweicurculactone, along with beta-sitosterol, germacrone, daucosterin and palmitic acid, was isolated from *C.kwangsiensis*. Its structure has been confirmed by means of spectral and X-ray diffraction analysis.

**9201-0439** Jiao, P.Y., Fang, J.N.*(Shanghai Institute of Materia Medica, Academia Sinica, Shanghai 200 031, China) **Studies on isolation, purification and structure of NLC-A of Rhamnus heterophyllus.** *Acta Pharmaceutica Sinica*, v. 24(5): p. 353-356, 1989 (13 ref, Eng, Chi).

A water-soluble glucan, NLC-A, from the roots of*R.heterophyllus* was obtained as a homogeneous component as determined by HPLC. Methylation analysis, peroxidation analysis, Smith degradation and reaction with I2-KI showed that NLC-A is a (1to4) linked alpha-D-glucan to which are attached glucosyl side chains at 0-6 of the glucosyl residues of the main chain.

**9201-0440** Jin, Q.D., Mu, Q.Z.(Kunming Institute of Botany, Academia Sinica, Kunming 650 204, China) **The constituents of C21-steroids from Dregea sinensis var. corrugata.** *Acta Pharmaceutica Sinica*, v. 24(8): p. 587-592, 1989 (7 ref, Eng, Chi).

Drevogenin I,II,two new aglycones, were isolated from *D.sinensis* var. *corrugata* on the basis of spectroscopic analysis and chemical reactions, the structure of aglycone I was established as C/D cis 5alpha-H,3beta, 8beta, 14beta, 17beta tetrahydroxy-12beta-O-isovaleryl-20-O-isovalerylpregnane. MS moleculer weight 552 and elementary analysis were compatible with C31H52O3. The structure of aglycone II was established as C/D cis 5alpha-H,3beta,14beta,17beta trihydroxy-12-beta-O-acetyl-20-O-benzoyl-pregnane.

**9201-0441** Jin, Q.D., Mu, Q.Z.(Kunming Institute of Botany, Academia Sinica, Kunming 650 204, China) **Studies on the structure of diglycoside from Dregea sinensis var. corrugata.** *Acta Pharmaceutica Sinica*, v. 25(8): p. 617-621, 1990 (5 ref, Chi, Eng).

A new diglycoside, named dregeoside, was isolated from the rhizomes of *D.sinensis* var.*corrugata*. The structure of dregeoside was deduced on the basis of chemical and spectral evidence as 12, 20-di-O-isovaleryl tomentogenin-3-O-alpha-L-oleandropyranosyl-(1 to 4)-alpha-L-oleandropyranoside.

**9201-0442** Kamal, R., Mangla, M.(Plant Physiology and Biochemistry Laboratory, Department of Botany, University of Rajasthan, Jaipur 302004, Rajasthan, India) **Flavonoids from Indigofera tinctoria L. in vivo and in vitro.** *Herba Polonica*, v. 36(1-2): p. 3-7, 1990 (14 ref, Eng).

Isolation of flavonoids, apigenin, kaempferol, luteolin and quercetin from *I.tinctoria* has been reported. Total flavonoid content was maximum in leaves and minimum in roots. Absence of quercetin in the tissue culture has reported. Production of flavonoids was more frequent in callus cultures than the plant parts.

**9201-0443** Kassem, F.F., Harraz, F.M. , El-Sebakhy, N.A., De Pooter, H.L., Schamp, N.M., Abou-Shleib, H.(Department of Pharmacognosy, Faculty of Pharmacy, Alexandria University, Alexandria, Egypt) **Composition of the essential oil of Egyptian Cupressus sempervirens L. Cones.** *Flavour and Fragrance Journal*, v. 6(3): p. 205-207 , 1991 (21 ref, Eng).

From the essential oil of *C.sempervirens*, prepared by steam distillation, analysed by GC and GC-MS, forty-nine compounds were identified, accounting for 98.8 percent of the oil. Its antimicrobial activity was tested against Staphylococcus aureus, Escherichia coli and Candida albicans.

**9201-0444** Kawakami, M., Kobayashi, A.(Department of Life and Culture, Shion Junior College, 6-11-1 Oomika, Hitachi-shi, Ibaraki 319-12, Japan) **Volatile constituents of green mate and roasted mate.** *Journal of Agricultural and Food Chemistry*, v. 39(7): p. 1275-1279, 991 (17 ref, Eng).

Volatile components of green mate (consumed in paraguay)and roasted mate produced in South America were analyzed by gas chromatography and gas chromatography/mass spectrometry. The aroma concentrates prepared by a simultaneous steam distillation and extraction method (SDE) consisted of more than 250 components. A total of 196 compounds were newly identified as mate volatiles in the present study. The volatile components of mate were similar to those of *Camellia sinensis* (tea) including 144 of the common components such as terpene alcohol, linalool, alpha-terpineol, geraniol, and nerolidol and ionone-related compounds alpha-ionone, beta-ionone, and 2,6,6-trimethyl-2-hydroxycyclohexanone. High levels of 2-butoxyethanol were characteristic, and 3,3,5-trimethylcyclohexanone-related compounds, although present at low levels, were specific to mate flavor. Roasted mate contained more furans, pyrazines, and pyrroles as formed by Maillard reaction during the roasting process.

**9201-0445** Kawashima, K., Mimaki, Y., Sashida, Y.*(Tokyo College of Pharmacy, 1432-1, Horinouchi, Hachioji, Tokyo 192-03, Japan) **Steroidal saponins from Allium giganteum and A. aflatunense.** *Phytochemistry*, v. 30(9): p. 3063-3067, 1991 (19 ref, Eng).

Chemical examination of the bulbs of *A.giganteum* and *A.aflatunensè* has led to the isolation of two new steroidal saponins together with a known saponin. The structure of the new saponin from *A.giganteum* was characterized as (24S,25R)-5alpha-spirostan-2alpha,3beta,5alpha,6beta,24-pentaol 24-O-beta-D-glucopyranoside and that from *A.aflatunense* as (25R)-5alpha-spirostan-2alpha,3beta,5alpha,6alpha-tetraol 2-O-beta-D-glucopyranoside by spectral and chemical means, and by comparing the data with those of a known compounds.

**9201-0446** Kohli, K., Ali, M., Aghabozorgi, H. , Qadry, J.S. (Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi 110 062, India) **Chemical constituents and cardiac stimulant action of flowers of Anchusa strigosa Linn. Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 235, 1991 (Eng).

Chloroform extract of the drug, *A.strigosa* (Gul-e-gaozaban), collected from the garden of the College of Agriculture Science, University of Shiraz, Iran, contained four aliphatic hydrocarbons, namely 10-nonadecanone, 1,14-heptadecanediol, hexatriacontane and 1,2-octadecanediol. The carbohydrates viz. rhamnose, fructose, galacturonic acid, glucose, arabinose and glucuronic acid were detected in the methanolic extract of the flowers. The aqueous extract was rich in amino acids of therapeutic importance. Seven protein bound amino acids were also detected in the protein hydrolysate. The anthocyanidins malvidin and pelargonidin, present in the MeOH-HCl extract, were responsible for the violet colour of the flowers. The aqueous extract had pH 7.0 and ash content of 3.5 percent. The alcoholic extract showed cardiac stimulant action on isolated guinea pig heart.

**9201-0447** Koike, K., Ishii, K., Mitsunaga, K. , Ohmoto, T.*(School of Pharmaceutical Sciences, Toho University, 2-2-1 Miyama, Funabashi, Chiba 274, Japan) **New des-4-methylpicrasane quassinoids from Picrasma javanica.** *Journal of Natural Products*, v. 54(3): p. 837-843 , 1991 (11 ref, Eng).

Six new des-4-methylpicrasane-type quassinoids, javanicins K, L, O, R, S, and T, were isolated from Indonesian *P.javanica*. In addition, two known picrasane quassinoids, nigakilactones B and F, were isolated. The structures have been determined by spectral means and by comparison with authentic samples.

**9201-0448** Kokumai, M., Konoshima, T., Kozuka, M., Haruna, M., Ito, K.(Kyoto Pharmaceutical University, Misasagi, Yamashina-ku, Kyoto 607, Japan) **Euglobal T1, a new euglobal from Eucalyptus tereticornis.** *Journal of Natural Products*, v. 54(4): p. 1082-1086 , 1991 (8 ref, Eng).

From the juvenile leaves of *E.tereticornis*, a new euglobal having a phlorophene-monoterpene structure, euglobal T1{1}, has been isolated along with the known euglobal IIc. The structure and stereochemistry of 1 were established by spectrosocpic evidence.

**9201-0449** Kong, D.Y., Li, H.T., Luo, S.Q.(Shanghai Institute of Pharmaceutical Industry, Shanghai 200 040, China) **Studies on the chemical components of Viscum coloratum VII. Isolation and structure of viscumneoside**

**VII.** *Acta Pharmaceutica Sinica*, v. 25(8): p. 608-611, 1990 (9 ref, Chi, Eng).

From the ethanol extract of *V.coloratum* a new flavonoid has been isolated. Based on chemical and spectrosocopic analysis, its structure has been elucidated as rhamnazin-3-O-beta-D-apisoyl-(1 to 2)-[6"-O-(3-hydroxy-3-methylglutarate)]-glucoside and named viscumneoside VII.

**9201-0450** Konoshima, T., Kozuka, M., Haruna, M., Ito, K.(Kyoto Pharmaceutical University, Misasagi, Yamashina-ku, Kyoto 607, Japan) **Constituents of leguminous plants, XIII. New triterpenoid saponins from Wistaria brachybotrys.** *Journal of Natural Products*, v. 54(3): p. 830-836 , 1991 (11 ref, Eng).

Two new triterpenoid saponins, wistariasaponins D(1) and G(2), and the known saponin dehydrosoyasaponin I(3) were isolated from the knots of *W.brachybotrys*. The structures of 1 and 2 were determined from their chemical and physicochemical evidence. The inhibitory effects of these saponins on the activation of Epstein-Barr virus early antigen that was induced by a tumor promoter were also tested for the primary screening of antitumor-promoting activities.

**9201-0451** Koziol, M.J.(Latinreco SA, Centre Nestle de Investigacion y Desarrollo Technologico de Alimentos para America Latina, Casilla 6053-CCI, Quito, Ecuador) **Afrosimetric estimation of threshold saponin concentration for bitterness in Quinoa (Chenopodium quinoa) Willd.** *Journal of the Science of Food and Agriculture*, v. 54(2): p. 165-176, 1991 (28 ref, Eng).

Taste testings and saponin estimation by a simple afrosimetric method showed that quinoa containing 0.11 percent saponins or less (corresponding to foam heights of 1.0 cm or less) can be considered sweet. A variation of the standard afrosimetric method is described which reduces total analysis time from 3 to 7 min. Used with the proper precautions, this rapid method, in which quinoa producing foam heights of 1.3 cm or less is considered sweet, is suitable for selecting promising low-saponin varieties in field trials and for monitoring the efficacy of abrasive dehulling (polishing) as a debittering process.

**9201-0452** Kraus, J.(Institute of Pharmaceutical Biology, University of Regensburg, Universitatsstrasse 31, D-8400 Regensburg, Germany) **Water-soluble polysaccharides from Ginko biloba leaves.** *Phytochemistry*, v. 30(9): p. 3017-3020, 1991 (21 ref, Eng).

The water-soluble polysaccharides from dried *G.biloba* leaves were isolated after exhaustive extraction with organic solvents. The polysaccharide mixture could be separated into a neutral (GF1) and two acidic (GF2 and GF3) polysaccharide fractions by ion exchange chromatography. GF2 could be further fractionated into two subfractions (GF2a and GF2b) by gel permeation chromatography. GF1 (Mr 23 000) showed the structural features of a branched arabinan.The main Chain was composed of 1,5-linked arabinose residues and three in 12 arabinose molecules were branched via C-2 or C-3. GF2 (Mr 500 000) consisted mainly of 1,2,4-branched mannose (29 percent), 1,4-linked glucuronic (32 percent) and galacturonic (8 percent) acid as well as terminal rhamnose (25 percent). The results indicated that the terminal as well as the 1,5-linked arabinose were mainly connected to galactose via C-3. The GF3 polysaccharide appeared to be a rhamnogalacturonan with arabinogalactan side chains.

**9201-0453** Kubo, I., Ying, B.P.(Division of Entomology and Parasitology, College of Natural Resources, University of California, Berkeley, CA 94720, USA) **Bisnorditerpene dilactone from Podocarpus nagi.** *Phytochemistry*, v. 30(10): p. 3476-3477, 1991 (11 ref, Eng).

A new type of bisnorditerpene dilactone, nagilactone J, was isolated from *P.nagi* and its structure deduced from spectroscopic data.

**9201-0454** Kubo, I., Murai, Y., Soediro, I. , Soetarno, S., Sastrodihardjo, S.(Division of Entomology and Parasitology, College of Natural Resources, University of California, Berkeley, California 94720, USA) **Efficient isolation of glycosidase inhibitory stilbene glycosides from Rheum palmatum.** *Journal of Natural Products*, v. 54(4): p. 1115-1118 , 1991 (15 ref, Eng).

A chemical investigation of biologically active compounds from the root of *R.palmatum* an Indonesian Jamu plant known as "kelembak," has led to the isolation and identification of two stilbene glycosides, 4'-O-methylpiceid and rhapontin, which exhibited moderate alpha-glycosidase inhibitory activity. These bioactive glycosides were efficiently isolated by using only dccc.

**9201-0455** Kundu, D., Sarkar, A.K.(Department of Zoology, University of Burdwan, Burdwan 713 104, WB, India) **Identification of a new alkaloid in the seed of Datura metel Linn..** *Indian Journal of Pharmacology*, v. 23(3): p. 177-178 , 1991 (6 ref, Eng).

Purified aqueous extract of *D.metel* seed was applied on GLC and an alkaloid was detected, which was different from atropine, hyoscyamine and hyoscine. MS showed similar molecular weight of the identified alkaloid as in hyoscine but differed in retention time in GLC. IR spectroscopy formulated the chemical configuration (C20H17O2N) of the alkaloid. NSL, New Delhi.

**9201-0456** Laferriere, J.E., Weber, C.W. , Kohlhepp, E.A. (Department of Ecology and Evolutionary Biology, University of Arizona, Tucson AZ 85721, USA) **Mineral composition of some traditional mexican teas.** *Plant Foods for Human Nutrition*, v. 41(3): p. 277-282 , 1991 (27 ref, Eng).

Teas of plant origin traditionally consumed by the Mountain Pima of Chihuahua, Mexico, were analyzed for mineral nutritional content. Fe,Cu,Zn,Ca, and Mg composition was determined for native teas made from shoots of *Tagetes lucida, T.filifolia, Mentha spp., Elytraria imbricata* and *Holodiscus dumosus* and from root xylem of *Ceanothus depressus* and *Phaseolus ritensis*. Native uses of these teas are also described.

**9201-0457** Lawson, L.D., Wang, Z.Y.J., Hughes, B.G.(Murdock Healthcare, Springville, Utah 84663, USA) **Identification and HPLC quantitation of the sulfides and dialk (en)yl thiosulfinates in commercial garlic products.** *Planta Medica*, v. 57(4): p. 366-370, 1991 (18 ref, Eng).

The identification and quantitation of over 95 weight of the non-ionic sulfur compounds found in large number of commerical garlic *Allium sativum* preparations, using the non-destructive method of HPLC analysis has been reported.

**9201-0458** Lemos, T.L.G., Pessoa, O.D.L. , Matos, F.J.A., Alencar, J.W., Craveiro, A.A.*(Universidade Federal do Ceara, Laboratorio de Productos Naturais, Depto. de Quimica organica e Inorganica, Caixa Postal 12.200, Campus do Pici 60.000 Fortaleza, Brasil) **The essential oil of Spilanthes acmella Murr.** *Journal of Essential Oil Research*, v. 3(5): p. 369-370 , 1991 (5 ref, Eng).

Eighteen compounds have been characterized by GC/MS and kovats indices in the essential oil of *S.acmella*. The major constituents identified were beta-caryophyllene (30.2 percent), gamma-cadinene (13.3 percent) and thymol (18.3 percent).

**9201-0459** Li, R.Z., He, Y.Q., Chiao, M. , Xu, Y., Zhang, Q.B., Meng, J.R. , Gu, Y.*, Ge, L.P.*(College of Pharmacy, Beijing Medical University, Beijing 100083, China) **Studies of the active constituents of the Chinese drug "Duhuo" Angelica pubescens.** *Acta Pharmaceutica Sinica*, v. 24(7): p. 546-551, 1989 (8 ref, Chi , Eng).

Eight coumarins isolated from the alcohol extract of the Chinese drug "Duhuo", the root of *A.pubescens* f. *biserrata* were elucidated to be columbianetin (I)columbianetin acetate (II), columbiadin (III), osthol (IV), isoimperatorin (V), bergapten (VI), xanthotoxin (VII) and columbianetin beta-D-glucopyranoside (VIII) by chemical and spectral analysis. Coumarin I,II,III,IV and VIII showed strong inhibitory activity against platelet aggregation induced by 2 microm ADP.

**9201-0460** Lin, C.N., Chung, M.I., Gan, K.H. , Lu, C.M.(Natural Products Research Center, Kaohsiung Medical College, Kaohsiung, Taiwan 8031, ROC) **Flavonol and anthraquinone glycosides from Rhamnus formosana.** *Phytochemistry*, v. 30(9): p. 3103-3106, 1991 (18 ref, Eng).

Two new flavonol triglycosides, and a new anthraquinone glycoside, have been isolated from the roots of *R.formosana*. These compounds have been characterized as rhamnazin 3-O-[alpha-L-rhamnopyranosyl(1 to 4)-alpha-L-rhamnopyranosyl(1 to 6)]-beta-D-galactopyranoside (rhamnazin 3-isorhamninoside), rhamnocitrin 3-O-isorhamninoside and 1,6,8-trihydroxy-3-methylanthraquinone 1-O-rhamnosyl(1 to 2) glucoside, respectively.

**9201-0461** Lins, A.P., Felicio, J.D., Braggio, M.M., Roque, L.C.* (Secao de Farmacologia, Instituto Biologico, C.P.7119, CEP 04014, Sao Paulo, Brasil) **A resveratrol dimer from Parthenocissus tricuspidata.** *Phytochemistry*, v. 30(9): p. 3144-3146, 1991 (11 ref, Eng).

The tricuspidatol-A, rel-2R,2'R-(4-hydroxyphenyl),3R,3'R-(3,5-dihydroxyphenyl) tetrahydrofuran, a new resveratrol dimer was isolated from the stemwood of *P.tricuspidata*. Its structure was established on the basis of spectrosocpic evidence and biosynthetic considerations.

**9201-0462** Liu J-K, Han X-W, Jia Z-J, Ju Y, Wang H-Q(Department of Chemistry, Zhongshan University, Guangzhou 510275, P.R. China) **Two sesquiterpene alkaloids from Celastrus angulatus.** *Phytochemistry*, v. 30(10): p. 3437-3440, 1991 (17 ref, Eng).

The structures of two new highly esterified sesquiterpene alkaloids isolated from *C.angulatus* were established by the application of two-dimensional NMR. The two compounds showed strong antifeeding action against several insects.

**9201-0463** Liu, G.M., Chen, Z.N., Yao, T.R. , Ding, W.G.(Department of Chemistry, Shanghai Second Medical University, Shanghai 200 025, China) **Studies on the chemical constituents of Rhynchotechum vestitum Hook. F.at Thoms.** *Acta Pharmaceutica Sinica*, v. 25(9): p. 699-704, 1990 (13 ref, Chi, Eng).

Five compounds, isolated from the ethanol extract of the stem and root of *R.vestitum* are reported. Four of them were identified as beta-sitosterol lepeol, rubiadin 1-methylether and rubiadin. Rubiadin an orange needle crystal (C17H14O6, mp 236.5 to 238 degree C) is a new anthra-

quinone compound named rhynchotechol. Its structure has been proved to be 1.6-dihydroxy-7,8-dimethoxy-2-methyl-9, 10-anthraquinone by spectral analyses and chemical methods..

**9201-0464** Liu, J.H., Yang, S.S., Fu, Y.Q. , Yuan, C.L., Liu, B. (Liaoning College of Traditional Chinese Medicine, Shenyang 110 032, China) **Studies on chemical constituents from Glycyrrhiza paliddiflora Maxim.** *Acta Pharmaceutica Sinica*, v. 25(9): p. 689-693, 1990 (8 ref, Eng, Chi).

Five compounds were isolated from the rhizome of *G.pallidiflora*. Four of them were elucidated by spectroscopic and chemical methods as beta-sitosterol, macedonic acid methyl ester, 21-dehydro-macedonic acid methyl ester (IV) and 5-hydroxy-4'-methoxy isoflavone (V). VI was isolated for the first time as a natural compound, named pallidifloric acid methyl ester. V is a new compound, named pallidiflorin.

**9201-0465** Liu, K., Roder, E.(Pharmazeutisches Institut der Universitat Bonn, An der Immenburg 4, D-5300 Bonn 1, Federal Republic of Germany) **Diterpenes from Siegesbeckia glabrescens.** *Planta Medica*, v. 57(4): p. 395-396, 1991 (3 ref, Ger).

Only title translated.

**9201-0466** Liu, Q., Liu, Y.L.(Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Beijing 100 094, China) **Studies on chemical constituents of Glycyrrhiza eurycarpa P.C.Li.** *Acta Pharmaceutica Sinica*, v. 24(7): p. 525-531, 1989 (8 ref, Eng, Chi).

The isolation and chemical elucidation of four (I-IV) flavonoid glycosides from *G.eurycarpa*, collected in Jinta County, Gansu Province, has been reported. On the basis of physical and chemical constants and spectroscopic data (UV, IR, MS, 1HNMR and 13CNMR), compound I was confirmed as a new isoflavone diglycoside. Its structure was elucidated as formaononetin-7-O[-D-apio-beta-D-furanosyl(1-2)]-beta-D-glucopyranosid e. The new compound was named glycyroside. The other three components (II-IV) were identified as liquiritin, isoliquiritin and schaftoside, respectively.

**9201-0467** Liu, W., Wang, Z.L., Liang, H.Q.(Faculty of Pharmaceutical Science, Second Military Medical University, Shanghai 200433, China) **Studies on the chemical constituents of Liriope spicata Lour(Thunb.) var. prolifera Y.T. Ma.** *Acta Pharmaceutica Sinica*, v. 24(10): p. 749-754 , 1989 (6 ref, Chi, Eng).

From the methanol extract of the roots of *L.spicata* var *prolifera* cultivated in Hubei province (China) four steroidal glycosides, tentatively named glycoside I, II, III and IV, were isolated. On the basis of chemical evidences, IR, El-MS, FAB_MS, 1H NMR and 13C NMR analysis, structures of these glycosides were elucidated and identified as beta-sitosterol(major) and stigmasterol (minor)-beta-D-glucopyranoside (I), 25(S)-ruscogenin 1-O-beta-D-fucopyranoside-3-O-alpha-L-rhamnopyranos ide (II), 25(S)-ruscogenin 1-O-alpha-L-rhamnopyranosyl (1-2)-beta-D-xylopyranoside (III) and 25 (S)-ruscogenin 1-O-[alpha-L-rhamnopyranosyl(1-2)][beta-D-xylopyra-n osyl(1-3)]-beta- D-fucopyranoside (IV). Glycosides III and IV are new steroidal saponins.

**9201-0468** Liu, Z.G., Pan, X.F., Chen, C.Y. , Chen, J.S.(Beijing Institute of Pharmaceutical Chemistry,Beijing 102205,China) **Studies on the chemical constituents of Rhododendron Molle G.Don.** *Acta Pharmaceutica Sinica*, v. 25(11): p. 830-833 , 1990 (7 ref, Chi, Eng).

Two physiologically active diterpenoids were isolated from the flower of Chinese azalea *R.mille*. One of them is a new compound, named rhodomollein-III; its structure has been established through IR, MS, 1HNMR, 13C NMR, 1H-1H COSY, 1H-1H NOESY and long-range 13C-1HCOSY. The other one is the known rhodojaponin-III.

**9201-0469** Lou, F.C., Ding, L.S., Waterman, P.G.(College of Traditional Chinese Medicine, China Pharmaceutical University, Nanjing 210 009, China) **Chemical studies on Aristolochia mollissima V..** *Acta Pharmaceutica Sinica*, v. 24(4): p. 305-307, 1989 (4 ref, Eng , Chi).

Two new phenanthrene compounds, 9-ethoxyaristololactam and 9-ethoxy-aristolactone, were isolated from the root of *A.mollissima*. Their structures were identified by means of spectral analysis.

**9201-0470** Loukis, A., Tsitsa-Tzardi, E. , Kouladi, M., Ma, Y. (Laboratory of Pharmacognosy, University of Athens, 20 Hippocratous Strasse, GR-10679 Athens, Greece) **Composition of the essential oil of Cupressus sempervirens L. cones from Greece.** *Journal of Essential Oil Research*, v. 3(5): p. 363-364 , 1991 (2 ref, Eng).

The essential oil of *C.sempervirens* cones was analyzed by gas chromatography and mass spectrometry. The main constituents were alpha-pinene (39.54 percent) and gamma-terpinene (11.56 percent).

**9201-0471** Ma, W.G., Wang, D.Z., Zeng, Y.L. , Yang, C.R.* (Laboratory of Phytochemistry, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, 650 204, China) **Three triterpenoid saponins from Triplostegia grandiflora.** *Phytochemistry*, v. 30(10): p. 3401-3404, 1991 (11 ref, Eng).

Three new triterpenoid saponins named triploside A-C were isolated from the roots of *T.grandiflora*, and characterized.

**9201-0472** Mahato, S.B.(Indian Institute of Chemical Biology, 4 Raja SC Mullick Road, Jadavpur, Calcutta 700 032, India) **Triterpenoid saponins from Medicago hispida.** *Phytochemistry*, v. 30(10): p. 3389-3393, 1991 (21 ref, Eng).

Soyasaponin III has been characterized and the structure of a new triterpenoid saponin, hispidacin, has been elucidated as soyasapogenol B-3-O-alpha-L-rhamnopyranopyranosyl(1 to 2)-beta-D-glucopyranosyl(1 to 2)-beta-D-glucuronopyranoside by a combination of fast-atom bombardment mass spectrometry. 13C NMR spectroscopy, and some chemical transformations. Mechanism of transformation of soyasapogenol B to soyasapogenols D, and F has also been rationalized.

**9201-0473** Mao, Q., Jia, X.S.(Guizhou Institute of Chinese Traditional Medicine, Guiyang 5500022, China) **Studies on the chemical constituents of Lonicera fulvotomentosa Hsu et S.C. Cheng.** *Acta Pharmaceutica Sinica*, v. 24(4): p. 269-274, 1989 (6 ref, Eng , Chi).

Five saponins have been isolated from the flowers of *L.fulvotomentosa* and the structure of V, a new triterpenoid saponin named as fulvotomentoside A (C58H94O26, mp 215-217 degree C), has been determined. Saponins I(C41H66O12, mp 259-262 degree C) and II(C46H74O16, mp 222-227 degree C) were characterised and identified to be alpha hederin and sapindoside B, respectively.

**9201-0474** Mareck, U., Herrmann, K., Galensa, R., Wray, V.(Institut fur Lebensmittelchemie der Universitat hannover, Wunstorfer Strasse 14, D-3000 Hannover, Germany) **The 6-C-chinovoside and 6-C-fucoside of luteolin from Passiflora edulis.** *Phytochemistry*, v. 30(10): p. 3486-3487, 1991 (6 ref, Eng).

Luteolin-6-C-chinovoside and luteolin-6-C-fucoside were isolated from leaves of Passifloraceae by preparative HPLC. The glycosides were identified by spectroscopy. Their concentration in passion fruit juice was determined by gradient reversed phase HPLC.

**9201-0475** Massiot, G., Thepenier, P. , Jacquier, M.J., Henin, J., Le Men-Olivier , Delaude, C.(Faculte de Pharmacie, (U.R.A. au C.N.R.S. n degree 492), 51 rue Cognacq-Jay, 51096 Reims Cedex, France) **Alkaloids from Strychnos henningsii.** *Phytochemistry*, v. 30(10): p. 3449-3456, 1991 (16 ref, Eng).

Seventeen alkaloids have been isolated from the leaves, stem and root barks of *S.henningsii* collected in Tanzania. Among these, the henningsiine and henningsamide derivatives are new alkaloids which possess a (16,17) double bond. Cyclostrychnine is a novel heptacyclic C21 alkaloid which presents some similarities with strychnine and has a C-16 to C-23 bond. Structures were established by spectral means and chemical correlations.

**9201-0476** Mata, R., Contreras, J.L., Crisanto, D., Pereda-Miranda, R., Castaneda, P., Del Rio, F.(Laboratorio de Fitoquimica, Departamento de Farmacia, Facultad de Quimica, Coyoacan 04510, Mexico, D.F., Mexico) **Chemical studies on Mexican plants used in traditional medicine, XVIII. New secondary metabolites from Dodonaea viscosa.** *Journal of Natural Products*, v. 54(3): p. 913-917 , 1991 (18 ref, Eng).

Investigation of the aerial parts of *D.viscosa* led to the isolation of a new ent-labdane (ent-15,16-epoxy-9alphaH-labda-13(16), 14-diene-3beta,8alpha-diol) and a novel p-coumaric acid ester of 1-L-myo-inositol(1-L-1-O-methyl-2-acetyl-3-p-coumaryl-myo-inositol), along with other known compounds. The structures were determined by spectroscopic analysis and chemical reactions.

**9201-0477** Mathela, C.S., Gupta, A., Upreti, P., Pant, A.K., Olmstead, M.M., Hope, H. , Bottini, T.(Department of Chemistry, Kumaun University, Nainital 263002, UP, India) **Coleon U 12-methyl ether from Nepeta leucophylla.** *Journal of Natural Products*, v. 54(3): p. 910-912 , 1991 (8 ref, Eng).

Coleon U 12-methyl ether {(R)-2,3,4,4a-tetrahydro-5,8,10-trihydroxy-6-methoxy-1,1,4a-trimethyl-7-(1-methylethyl)-9(1H)-phenanthrenone} was isolated from roots of *N.leucophylla* and its structure and absolute configuration were determined by X-ray analysis.

**9201-0478** Matsuzaki, T., Fukamiya, N., Okano, M.*, Fujita, T., Tagahara, K., Lee, K.H.(Interdisciplinary Studies of Natural Environment, Faculty of Integrated Arts and Sciences, Hiroshima University, Hiroshima 730, Japan) **Picrasinoside H, a new quassinoid glucoside, and related compounds from the stem wood of Picrasma ailanthoides.** *Journal of Natural Products*, v. 54(3): p. 844-848 , 1991 (12 ref, Eng).

A new quassinoid glucoside, picrasinoside H(C30H44O13, mp 270 degrees C), and five known quassinoids have been isolated from the stem wood of *P.ailanthoides*. The structures of these quassinoids were elucidated on the basis of spectral evidence.

**9201-0479** Maxwell, A., Rampersad, D.(Department of Chemistry, The University of the West Indies, St. Augus-

tine, Trinidad and Tobago, West Indies) **New dihydropiplartine and piplartine dimer form Piper rugosum.** *Journal of Natural Products*, v. 54(4): p. 1150-1152 , 1991 (15 ref, Eng).

The acetone extract of the acrial parts of *P.rugosum* yielded two piperidine alkaloids characterized as 8,9-dihydropiplartine(1) and piplartine dimer(2) by spectroscopic methods. Compound 1 has not been previously reported.

**9201-0480** Mehmedic, Z., Gorunovic, M.*(Institut de Pharmacognosie, Faculte de Pharmacie, 11000 Belgrade, Rue DK Subotica 8.pf.146, Yougoslavic) **Study on Serbian wild hemps (Cannabis sativa L.).** *Herba Hungarica*, v. 30(1-2): p. 17-22, 1991 (9 ref, Fre, Hun).

Only title translated.

**9201-0481** Mehta, B.K., Gawarikar, R.(School of Studies in Chemistry, Vikram University, Ujjain 456 010, MP, India) **Characterisation of a novel triterpenoid from Curculigo orchioides Gaertn.** *Indian Journal of Chemistry*, v. 30B(10): p. 986-988 , 1991 (6 ref, Eng).

A novel pentacyclic triterpene has been isolated from the rhizomes of *C.orchioides* and characterized as 31-methyl-3-oxo-20-ursen-28-oic acid on the basis of spectral and chemical evidences.

**9201-0482** Min, Z.D., Jiang, H., Liang, J.Y.(Department of Phytochemistry, China Pharmaceutical University, Nanjing 210 009, China) **Studies on the taxane diterpenes of the heart-wood from Taxus mairei.** *Acta Pharmaceutica Sinica*, v. 24(9): p. 673-677, 1989 (9 ref, Eng, Chi).

A new taxane diterpene(1) and three known taxane diterpenes were isolated from the heartwood of *T.mairei* grown in Eujian province of China and identified as 1-dehydroxy-baccatin (1), baccatin, 1-dehydroxybaccatin and taxinne J on the basis of spectral data.

**9201-0483** Mizuno, M., Matsuura, N., Tanaka, T., Iinuma, M., Ho, F.C.*(Department of Pharmacognosy, Gifu Pharmaceutical University, 6-1 Mitahora-higashi 5 Chome, Gifu 502, Japan) **Four flavonoids in the roots of Euchresta formosana.** *Phytochemistry*, v. 30(9): p. 3095-3097, 1991 (4 ref, Eng).

Four new flavonoids were isolated from the roots of *E.formosana* and characterized as euchretin D, euchretin E, euchrenone a11 and euchrenone a12 by means of spectroscopic analysis.

**9201-0484** Mohamed, M.H., Saito, K., Kadry, H.A., Khalifa, T.I., Ammar, H.A., Murakoshi, I.(Faculty of Pharmaceutical Sciences, Chiba University, Yayoi-cho, 1-33, Chiba 260, Japan) **Lupin alkaloids from the seeds of Lupinus termis.** *Phytochemistry*, v. 30(9): p. 3111-3115, 1991 (37 ref, Eng).

A new lupin alkaloid, (-)-delta5-dehydroalbine, was isolated from the ethanol extract of the seeds of *L.termis* together with some unusual lupin alkaloids, (-)-albine, (-)-11,12-seco-12,13-didehydromultiflorine and (-)-13alpha-hydroxymultiflorine. The structure of the new alkaloid (1) was presumed to be (-)-delta5-dehydroalbine on the basis of its spectroscopic data. The unusual type of lupin alkaloids substituted at C-13 such as (-)-albine and (-)-delta5-dehydroalbine are assumed to be derived possibly from (-)-13alpha-hydroxymultiflorine via an aza-Cope rearrangement as the key step.

**9201-0485** Monde, K., Sasaki, K., Shirata, A. , Takasugi, M. (Department of Chemistry, Faculty of Science, Hokkaido University, Sapporo 060, Japan) **Brassicanal C and two dioxindoles from cabbage.** *Phytochemistry*, v. 30(9): p. 2915-2917, 1991 (14 ref, Eng).

Brassicanal C,(C10H9NO3S, mp 150 to 151 degrees C)a new sulphur-containing phytoalexin, and two dioxindoles were isolated from cabbage inoculated with Pseudomonas cichorii. Brassicanal C was shown to possess a unique sulphinate structure on the basis of spectroscopic data and optical activity. One of the dioxindoles, dioxibrassinin, appears structurally to be a possible precursor to spirobrassinin Brassicanal C and A inhibitedconidial germination of *B.leersiae.*

**9201-0486** Mwangi, J.W., Addae-Mensah, I. , Munavu, R.M., Lwande, W.(Department of Pharmacy, University of Nairobi, PO Box 19676, Nairobi, Kenya) **Essential oils of Kenyan Lippia species. Part III.** *Flavour and Fragrance Journal*, v. 6(3): p. 221-224 , 1991 (22 ref, Eng).

Essential oils from six *Lippia* species, namely *L.javanica, L.dauensis, L.carviodora, L.carviodora* var *minor*, *L.grandifolia*, *L.wilmsii*, have been analysed by GC and GC-MS. Myrcenone, cis- and trans-ocimenone have been found to be the major constituents of essential oil of *L.javanica.* Beta-Ocimene, cis-tagetone and 2-methyl-6-methylene oct-7-en-4-one are major compounds of *L.dauensis* oil. *L.carviodora* var *minor* oil consists primarily of sesquiterpene hydrocarbons, beta-cubenene being the major constituent.

**9201-0487** Nagumo, S., Kishi, S.I., Inoue, T. , Nagai, M.(Faculty of Pharmaceutical Sciences, Institute of Medicinal Chemistry, Hoshi University, Ebara 2-4-41, Shinagawa-ku, Tokyo 142, Japan) **Saponins of Anemarrhenae Rhizoma.** *Yakugaku Zasshi*, v. 111(6): p. 306-310, 1991 (11 ref, Jap).

Of three steroidal saponins, newly isolated from Anemarrhenae Rhizoma, two were identical with desgalactotigonin and F-gitonin, while the structure of the third was established as (25S)-26-O-beta-D-glucopyranosyl-22-hydroxy-5beta-furostane-3beta,26-d iol 3-O-beta-D-glucopyranosyl-(1-2)-O-beta-D-galactopyra noside on the basis of chemical and spectroscopic evidence.

**9201-0488** Natarajan, R.K., Ragothaman, P. , Veluchamy, G., Balakrishna, K.(Drug Research Scheme, Central Research Institute for Siddha, Madras 106, TN, India) **Chemical examination of Pisonia grandis (Lechai Kottai Keerai).** *Bulletin of Medico-Ethnobotanical Research*, v. 11(1-4): p. 110-111, 1990 (1 ref, Eng, Hin).

Chemical examination of *P.grandis* (Lechai Kottai, Keerai) afforded octacosanol, beta-sitosterol, alpha-spinasterol, beta-sitosterol glucoside, dulcitol and quercetin.

**9201-0489** Ngalamulume, Babady-Bila, Kilonda, A. , Toppet, S., Compernolle, F., Hoornaert, G.(Laboratoire de Chimie des Substances Naturelles, Department de Chimie, Universite de Kinshasa BP 137, Kinshasa XI, Zaire) **An ursadienedioic acid glycoside from Crossopteryx febrifuga.** *Phytochemistry*, v. 30(9): p. 3069-3072, 1991 (14 ref, Eng).

From the root bark of *C.febrifuga* a triterpene saponin characterized by a novel ursadienedioic acid aglycone part was isolated. The structure 3bet-(alpha-L-rhamnopyranosyloxy)-28-O-(beta-D-glucopyranosyl)urs-12,20(30)-diene-27,28-dioic acid was established on the basis of 1H and 13C NMR, and mass spectrometry of various derivatives prepared before and after acidic cleavage of the 28-O-glucosyl ester. Total acidic hydrolysis led to hydration of the exocyclic 20(30)-double bond and further transformations of the aglycone group.

**9201-0490** Ngouela, S., Tsamo, E.*, Sondengam, B.L., Connolly, J.D. (Department of Organic Chemistry, University of Yaounde, P.O. Box 812, Yaounde, Cameroon) **Spathodol, a new polyhydroxysterol from the leaves of Spathodea campanulata.** *Journal of Natural Products*, v. 54(3): p. 873-876 , 1991 (19 ref, Eng).

Spathodol (C29H48O2, mp 224-25 degree C), a new dihydroxylated sterol, has been isolated from the leaves of [S.campanulata] along with the previously reported triterpenoids 3beta-acetoxyoleanolic acid, siaresinolic acid, 3beta-acetoxy-12-hydroxyoleanan-28, 13-olide, oleanolic acid, and beta-sitosterol-3-O-beta-D-glucopyranoside. The structure of the new natural polyol was elucidated by spectroscopic methods.

**9201-0491** Obasi, N.B.B., Ndelle, K.N.(Department of Pharmacognosy, School of Pharmacy, University of Benin, Benin City, Nigeria) **Study of the seed oil of Brachystegia nigerica Hoyle and A.P.D. Jones.** *Journal of the American Oil Chemists' Society*, v. 68(9): 649-650, 1991 (11 ref, Eng).

Nutritional and medicinal constituents of *B.nigerica* seed oil have been studied. Fatty acid composition revealed the presence of lauric, myristic, palmitic, stearic, oleic, linoleic, arachidic and arachidonic acids. A study of non-saponifiable fraction showed it to be rich in sterols. Ergosterol and sitosterol were identified. The occurrence of ergosterol (otherwise reported more frequently in animals and lower plants) a source of vitamin D, is noteworthy.

**9201-0492** Omata, A., Yomogida, K., Teshima, Y., Nakamura, S., Hashimoto, S., Arai, T. , Furukawa, K.(Shiseido Product Research Laboratories, 1050 Nippa-cho, Kohoku-ku, Yokohama-shi, Kanagawa 223, Japan) **Volatile components of ginger flowers (Hedychium coronarium Koenig).** *Flavour and Fragrance Journal*, v. 6(3): p. 217-220 , 1991 (20 ref, Eng).

Volatile components of the ginger flower *Hedychium coronarium* were concentrated by solvent extraction and further simultaneous distillation and extraction(SDE). The essential oil was fractionated by column chromatography and analysed with GC and GC-MS, and 131 compounds were identified. The ginger flower has a diffusive, sweet, spicy and floral scent and linalol, methyl jasmonate, eugenols, cis-jasmone, beta-ionone and lactones were found to make a major contribution to the odour of this flower.

**9201-0493** Ortega, A., Cardenas, J., Toscano, A., Maldonado, E., Aumelas, A., Van Calsteren, M.R., Jankowski, C.(Instituto de Quimica, Universidad Nacional Autonoma de Mexico Circuito Exterior, Ciudad Universitaria, Coyoacan, 04510 Mexico, DF) **Salviandulines A and B. Two secoclerodane diterpenoids from Salvia lavanduloides.** *Phytochemistry*, v. 30(10): p. 3357-3360, 1991 (12 ref, Eng).

Two novel 9,10-secoclerodane diterpenoids, salviandulines A and B, were isolated from aerial parts of *Salvia lavanduloides*. Their structures were established by high resolution NMR and X-ray diffraction analysis.

**9201-0494** Osman, S.F., Sinden, S.L.*, Irwin, P., Deahl, K., Tingey, W.M.(US Department of Agriculture, ARS, Eastern Regional Research Center 600 East Mermaid Lane, Philadelphia, PA 19118, USA) **Solanocardinol: A steroidal alkaloid from Solanum neocardenasii.** *Phytochemistry*, v. 30(9): p. 3161-3163, 1991 (7 ref, Eng).

The structure of a new steroidal alkaloid from *S.neocardenasii*, solanocardinol, has been characterized by

mass spectrometry, 2D-NMR and chemical methods. In contrast to the closely related spirofuranopiperidine the configuration of this compound at C-16 is beta. The relevance of solanocardinol to the chemotaxonomy of *Solanum* species is discussed.

**9201-0495** Papadopoulos, G., Boskou, D.(Faculty of Chemistry, Laboratory of Organic, Chemical Technology and Food Chemistry, University of Thessaloniki, Thessaloniki 54006, Greece) **Antioxidant effect of natural phenols on olive oil.** *Journal of the American Oil Chemists' Society*, v. 68(9): 669-671, 1991 (17 ref, Eng).

The total polar fraction and individual phenols present in vergin olive oil *Olea europaea* were tested for their antioxidant activity in refined olive oil. Hydroxytyrosol and caffeic acids showed protection factors greater than B HT. Protocatechuic and syringic acids were also found to have antioxidant activity. However, tyrosol, p-hydroxyphenyl acetic acid, O-and p-coumaric acids. p-hydroxybenzoic acid and vanillic acid had no antioxidant activity. Natural olive oil has a long shelf life compared to other oils.

**9201-0496** Pei, Y.H., Li, X., Zhu, T.R.(Research Department of Natural Drugs, Shenyang College of Pharmacy, Shenyang 110015, China) **Studies on the chemical constituents from the root-sprouts of Agrimonia pilosa Ledeb.** *Acta Pharmaceutica Sinica*, v. 24(6): p. 431-437, 1989 (10 ref, Chi, Eng).

Five compounds were isolated from the petroleum ether extract of the root-sprouts of *A.pilosa*. A new compound, (R)-(-)-agrimol B, was elucidated by means of physical and chemical properties, spectroscopy (MS, IR, PMR, UV) and total synthesis. Four known compounds were identified as agrimophol, n-nonacosane, beta-sitosterol and pseudo-aspidin, the last one being previously known only as a synthetic entity. (S)-(+)-Agrimol B was also synthesized.

**9201-0497** Pei, Y.H., Li, X., Zhu, T.R. , Wu, L.J.(Research Department of Natural Drugs, Shenyong College of Pharmacy, Shenyang 110 015, China) **Studies on the structure of a new flavanonol glucoside of the root-sprouts of Agrimonia pilosa Ledeb.** *Acta Pharmaceutica Sinica*, v. 25(4): p. 267-270, 1990 (r ref, Chi, Eng).

Three compounds were isolated from benzene and acetone extracts of the root-sprouts of *A.pilosa*. On the basis of physicochemical properties, spectroscopy (UV, IR, NMR, MS, CD, GC) and chemical degradation, two known compounds were identified as palmitic acid and daucosterol, one new compound was elucidated as (2S,3S)-(-)-taxifolin-3-O-beta-D-glucopyranoside.

**9201-0498** Pei, Y.H., Li, X., Zhu, T.R.(Research Department of Natural Drugs, Shenyang College of Pharmacy, Shenyang 110015, China) **Studies on the structure of a new isocoumarin glucoside of the rootsprouts of Agrimonia pilosa Ledeb.** *Acta Pharmaceutica Sinica*, v. 24(11): p. 847-852 , 1989 (5 ref, Eng, Chi).

Trans-p-hydroxycinnamic esters VI and an isocoumarin glucoside VII were isolated from the benzene and acetone extracts of the root-sprouts of *A.pilosa*. On the basis of physicochemical properties, spectral data (UV, IR, NMR, MS, CI-MS-MS), GC and chemical degradation, VI was elucidated as trans-p-hydroxycinnamic esters of n-C22,n-C24 to 32, n-C34, alcohols, VII was elucidated as agrimonolide-6-O-beta-D-glucopyranoside.

**9201-0499** Pei, Y.H., Li, X., Zhu, T.R.(Research Department of Natural Drugs, Shenyang College of Pharmacy, Shenyang 110 015, China) **Studies on the structure of a new ellagic acid glycoside from the root-sprouts of Agrimonia pilosa Ledeb.** *Acta Pharmaceutica Sinica*, v. 25(10): p. 798-800 , 1990 (8 ref, Chi, Eng).

Four compounds were isolated from the root-sprouts of *A.pilosa*. On the basis of physico-chemical properties, spectroscopy (UV,IR,NMR,MS) and chemical degradation, a new compound was elucidated as ellagic acid-4-O-agrimonolide, tormentic acid, and ellagic acid.

**9201-0500** Pinto, A.C., Valente, L.M.M. , Pizzolatti, M. G. (Instituto de Quimica, Universidade Federal do Rio de Janeiro, Centro de Tecnologia, Bloco A, Cidade Universitaria, Ilha do Fundao, 21910, Rio de Janeiro, Brazil) **Two diterpenes with a cleistanthane skeleton from Vellozia declinans.** *Phytochemistry*, v. 30(9): p. 3136-3138, 1991 (5 ref, Eng).

Two new cleistanthane diterpenes have been isolated from *V.declinans*, and their structures elucidated by spectrosocpic methods and chemical interconversion.

**9201-0501** Qadry, J.S., Ali, M.(Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi 110062, India) **Protein bound and free amino acid composition of some medicinal plants Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, Nov. 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 236, 1991 (C10, Eng).

Protein bound and free amino acid profile of various parts of some medicinal plants was studied. The number of free amino acids exceeded the number of bound amino acids. Alanine and valine were the most widely distributed amino acids of fruit proteins. Asparagine and tyrosinen fruit edible parts and alanine,threonine, tyrosine and valine in

seeds were the most abundantly distributed free amino acids. Fruits of *Ficus reigiosa, Ficus lacor,Litchi chinensis, Mangifera indica,*and *Morus laevigate*, seeds of *Achras zapota, Azadirachta indica,Daucus carota* and *Delonix regia* tuber of *Pueraria tuberosa* and flowers of *Anchusa strigosa* were the richest source of free amino acids. *Aegle marmelos* pericarp and *Ficus bengalensis* fruit protein contained the highest levels of bound amino acids.

**9201-0502** Qiu, S.X., Zhang, Z.X., Zhou, J.(Kunming Institute of Botany, Academia Sinica, Kunming 650 204, China) **Structural determination of neocynaversicoside isolated from Cynanchum versicolor Bunge.** *Acta Pharmaceutica Sinica*, v. 25(6): p. 473-476, 1990 (9 ref, Chi, Eng).

A new C-21 steroidal glycoside named neocynaversicoside along with a known compound glaucoside-H was isolated from one of the plant species used as "Bai-Wei" in traditional Chinese medicine, *C.versicolor*, and its structure was deduced as neocynapanogenin 3-O-beta-D-thevetopyranoside on the basis of chemical and spectral evidence.

**9201-0503** Rao, K.S.(Department of Chemistry, PO Box 320, University of Papua New Guinea, Papua New Guinea) **Characteristics and fatty acid composition of Brachychiton species seeds and the oils (Sterculiaceae).** *Journal of Agricultural and Food Chemistry*, v. 39(5): p. 881-882, 1991 (10 ref, Eng).

Percentage contents of oil and protein in the seeds of *B.rupestris,B.australis,B.acuminatus,B.gregori* were 28.7, 29.6, 32.5 and 29.8 percent and 23.6, 23.5, 22.6 and 22.0 percent respectively. The major fatty acid was oleic in *B.acuminatus* and linoleic in the other three seed oils. Cyclopropane fatty acids malvalic and sterculic acids were present in appreciable concentrations (6.6-10.6 percent) and 0.5-2.2 percent). Cyclopropane fatty acids were identified and estimated by physico chemical means.

**9201-0504** Rasool, N., Khan, Q., Ahmad, U. , Malik, A.*(H.E.J. Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **New cycloartane-type triterpene from Pentatropis spiralis.** *Journal of Natural Products*, v. 54(3): p. 889-892 , 1991 (19 ref, Eng).

A new triterpene has been isolated from *P.spiralis*. Its structure was established as cycloart-22-ene-3alpha,25-diol through chemical and spectroscopic studies including 2D NMR. Two known triterpenes, cyclocucalenol and 24-methylenecycloartanol, were also isolated.

**9201-0505** Roeder, E., Liu, K.*, Bourauel, T.(Pharmazeutisches Institut der Universitat Bonn, An der Immenburg 4, D-5300 Bonn 1, Germany) **Pyrrolizidine alkaloids from Echium pininana.** *Phytochemistry*, v. 30(9): p. 3107-3110, 1991 (10 ref, Eng).

Seven pyrrolizidine alkaloids were isolated from *E.pininana* and their structures determined by spectroscopic methods. One of them is new and the name echiupinine is proposed for it. The corresponding echiupinine-N-oxide and the previously undescribed myoscorpine-N-oxide are also present in this plant species.

**9201-0506** Ruberto, G., Spadaro, A., Piattelli, M., Piozzi, F., Passannanti, S.(Istituto del CNR per lo Studio delle Sostanze Naturali di Interesse Alimentare e Chimico-Farmaceutico, Viale A.Doria 6, I-95125 Catania, Italy) **Volatile flavour components of Ocimum basilicum var. hispidum (Lam.) Chiov.** *Flavour and Fragrance Journal*, v. 6(3): p. 225-227 , 1991 (18 ref, Eng).

The volatile components obtained by steam-distillation of *O.basilicum*var.*hispidum* were analysed by gas chromatography and gas chromatography-mass spectrometry. A total of 21 compounds, representing ca 90 percent of the total oil, were identified. The identity of the main component (82 percent), dihydrotagetone, was confirmed by 1H- and 13C-NMR spectroscopy. This is the first report of this compound in the genus *Ocimum*.

**9201-0507** Said, I.M., Chun, N.C., Houghton, P.J.(Department of Chemistry, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Malaysia) **Ursolic acid from Mitragyna speciosa.** *Planta Medica*, v. 57(4): p. 398, 1991 (7 ref, Eng).

The ethyl acetate extract of the fresh leaves of *M.speciosa* obtained on campus of University Kebangsaan Malaysia and authenticated at source showed the presence of a major compound which turned pink on heating (TLC plate) after spraying with concentrated H2SO4. The compound was separated by CC and identified as ursolic acid from its physical and spectroscopic data (IR, NMR, mass).

**9201-0508** Sakakibara, I., Katsuhara, T. , Ikeya, Y., Hayashi, K., Mitsuhashi, H.(Tsumura Research Institute for Biology & Chemistry, 3586 Yoshiwara, Ami-machi, Inashiki-gun, Ibaraki, 300-11, Japan) **Cannabisin A, an arylnaphthalene lignanamide from fruits of Cannabis sativa.** *Phytochemistry*, v. 30(9): p. 3013-3016, 1991 (8 ref, Eng).

A new lignanamide, named cannabisin A, a known lignanamide, grossamide, and three known amides, N-trans-caffeoyltyramine, N-trans-feruloyltyramine, N-p-coumaroyltyramine, were isolated from the fruits of *C.sativa*. The structure of cannabisin A has been established as 6,7-dihydroxy-1-(3,4-dihydroxyphenyl)-N1,N2-bis-[2-

(4-hydroxyphenyl)et hyl]-2,3-naphthalenedicarboxamide, on the basis of chemical and spectral evidence.

**9201-0509** Sakurai, N., Yaguchi, Y., Hirakawa, T., Nagai, M., Inoue, T.(Faculty of Pharmaceutical Sciences, Institute of Medicinal Chimistry, Hoshi University, Ebara 2-4-41, Shinagawa-ku, Tokyo, 142, Japan) **Two myricanol glycosides from Myrica rubra and revision of the structure of isomyricanone.** *Phytochemistry*, v. 30(9): p. 3077-3079, 1991 (10 ref, Eng).

Two new diarylheptanoid glycosides were isolated from the stem bark of *M.rubra*. On the basis of spectral and chemical evidence, their structures were established as myricanol 5-O-beta-D-glucopyranosyl-(1 to 3)-beta-D-glucopyranoside and myricanol 5-O-alpha-L-arabinofuranosyl-(1 to 6)-beta-D-glucopyranoside, respectively. The structure of isomyricanone was reexamined chemically and physicochemically, and a revised structure is presented.

**9201-0510** San Feliciano, A., Caballero, E.* , Rey, B.D., Sancho, I.(Departamento de Quimica Organica, Facultad de Farmacia, 37007 Salamanca, Spain) **Diterpene acids from Juniperus communis subsp. hemisphaerica.** *Phytochemistry*, v. 30(9): p. 3134-3136, 1991 (5 ref, Eng).

Thirteen diterpenoids with labdane and pimarane skeletons have been identified in the acid fraction of a hexane extract from leaves of *J.communis* subsp. *hemisphaerica*. Among these, 15-O-palmitoyl isocupressic acid has been isolated for the first time from a natural source.

**9201-0511** Sanz, J.F., Garcia-Sarrion, A. , Marco, J.A. (Departamento de Quimica Organica, Facultad de Ciencias Quimicas, Universidad de Valencia, E-46100 Burjassot, Valencia, Spain) **Germacrane derivatives from Santolina chamaecyparissus.** *Phytochemistry*, v. 30(10): p. 3339-3342, 1991 (21 ref, Eng).

The aerial parts of *S.chamaecyparissus* subsp. *squarrosa* yieleded five new germacrane derivatives and a known eudesmane dialcohol.

**9201-0512** Sattar, A., Malik, M.S., Khan, S.A.(PCSIR Laboratories Complex, Lahore 54600, Pakistan) **Essential oils of the species of Labiatae . Part IV. Composition of the essential oil of Thymus serpyllum.** *Pakistan Journal of Scientific and Industrial Research* , v. 34(4): p. 119-120, 1991 (6 ref, Eng).

The composition of the essential oil of *T.serphyllum* has been studied. The major terpenes in the oil are gamma-terpinene (1.66 percent), para-cymene (9.54 percent), camphor (3.54 percent), caryophyllene (2.19 percent), terpinen-4-ol (2.90 percent), borneol (3.13 percent), thymol (42.63 percent) and carvacrol (8.16 percent).

**9201-0513** Satyanarayana, V., Krupadanam, G.L.D. , Srimannarayana, G.(Department of Chemistry, Osmania University, Hyderabad 500 007, AP, India) **Cyclonivuliaol, a new cycloartane epoxy triterpenoid from Euphorbia nivulia Buch-Ham.** *Indian Journal of Chemistry*, v. 30B(10): p.989-900 , 1991 (13 ref, Eng).

The extract of the latex of *E.nivulia* of Indian origin affords a new cycloartane epoxy triterpenoid designated as cyclonivuliaol. Its structure has been elucidated by spectroscopic and chemical methods.

**9201-0514** Saxena, V.K., Chaturvedi, P.K.(Natural Products Laboratory, Chemistry Department, Gour Vishwavidyalaya, Sagar 470003, MP, India) **Chemical examination of the fat from the bulbs of Urginea indica.** *Journal of the Institution of Chemists (India)*, v. 62(Pt.III): p. 103-104, 1990 (5 ref, Eng).

Fatty acid composition of *U.indica* (Sea onion or true squill) has been carried out by paper and gas liquid chromatographies. The percentage composition is as follows, lauric acid, 12.2; stearic acid, 12.8, arachidic acid, 17.1, myristic acid, 19.5; palmitic acid, 10.8; oleic acid, 10.4; linolenic acid, 11.8; and recinoleic acid, 5.2.

**9201-0515** Schiff, P.L. (Jr.)(Department of Pharmaceutical Sciences, School of Pharmacy, University of Pittsburgh, Pittsburgh 15261, USA) **Bisbenzylisoquinoline alkaloids.** *Journal of Natural Products*, v. 54(3): p. 645-749 , 1991 (482 ref, Eng).

The bisbenzylisoquinoline alkaloids constitute a series of almost 400 phenylalanine-derived metabolites with a rich and varied chemistry and pharmacology. This tabular review encompasses the literature from 1986 through 1989 and described the botanical sources, physicochemical and spectral data, and pharmacological activities for the approximately 122 new alkaloids that have been isolated in this time period. Furthermore, additional physicochemical and spectral data for previously isolated bisbenzylisoquinoline alkaloids, as well as their botanical sources and pharmacological activities, are presented. Finally, various procedures useful in the isolattion, separation, and quantitation of these alkaloids, as well as their biosynthesis and synthesis, are also cited.

**9201-0516** Segiet-Kujawa, E., Kaloga, M.(Institute of Medicinal Plants, 61-707 Poznan, Poland) **Triterpenoid saponins of Eleutherococcus senticosus roots.** *Journal of Natural Products*, v. 54(4): p. 1044-1048 , 1991 (19 ref, Eng).

From the roots of *E.senticosus*, two new glycosides of protoprimulagenin A have been isolated. Structures of these compounds have been elucidated on the basis of spectral data.

**9201-0517** Sendl, A., Wagner, H.(Institute of Pharmaceutical Biology University of Munich, Karlstrasse 29, D-8000 Munchen 2, Federal Republic of Germany) **Isolation and identification of homologues of ajoene and alliin from bulb-extracts of Allium ursinum.** *Planta Medica*, v. 57(4): p. 361-362, 1991 (7 ref, Eng).

From the chloroform extract of *A.ursinum* bulbs, in addition to other sulfur-containing constituents (E/Z)-4,5,9-trithiadeca-1,6,11-dien-9-oxide (=methylajoene) and (E/Z)-4,5,9-trithiaocta-1,6-dien-9-oxide(=dimethylajoene) were isolated and identified by NMR and mass spectroscopy. These two compounds were also found in *A.sativum* but in lower amounts. The higher contents of the corresponding precursors (+)-S-methyl-L-cysteine sulfoxide and methylallyl/allylmethyl thiosulfinate in *A.sativum* water/methanol extracts correspond with the higher amounts of ajoene homologues.

**9201-0518** Sener, B., Temizer, H.(Department of Chemistry, Faculty of Pharmacy, Gazi University, TR-06330 Ankara, Turkey) **Chemical studies on the minor isoquinoline alkaloids from Corydalis solida subsp brachyloba.** *Journal of the Chemical Society of Pakistan*, v. 13(1): p. 63-66, 1991 (10 ref, Eng).

The following minor alkaloids have been isolated from *C.solida* ssp *brachyloba* growing in Turkey: fumarophycine, corpaine, ophiocarpine, 13-methyl-columbamine, corydalidzine, fumaritine, africanine and a new tetrahydroprotoberberine alkaloid corybrachylobine (C23H23O4N). Other alkaloids obtained are fumariline, parfumine, sibiricine, canadine, sinactine, corydalmine, scoulerine, berberine, dehydrocorydaline, oxocularine, oxosarcocapnidine, bicuculline, alpha-hydrastine, bulbocapnine, isoboldine, norsanguinarine, chelidimerine, protopine, beta-allocryptopine, norjusiphine and corydaldine.

**9201-0519** Sharma, O.P.(Biochemistry Laboratory, Indian Veterinary Research Institute, Regional Station, Palampur, HP, India) **Chemistry molecular polymorphism, three dimensional structure and biological action of Lantana** *Lantana camara* L. hepatotoxins Abstract of the paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, 24-28 Nov. 1991]. *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 146, 1991 (Eng).

Ingestion of lantana (*L.camara*) foliage by grazing animals causes hepatotoxicity and photosensitization. The active principles in lantana leaves have been characterized. Chemical entities responsible for causing hepatotoxicity are lantadene A and C, which are pentacyclic triterpenes, and have been prepared in crystalline (form I) and amorphous (form II). Form II of lantadene A and forms I and II of lantadene C elucited hepatotoxicity; while lantadene B, which is an isomer of A and is abundant in lantana leaves has been found to be non toxic. Another compound lantadene D has been identified in lantana leaves (red variety).

**9201-0520** Sharma, S., Sharma, R.K., Gupta, K.C.(Department of Chemistry, CBS & H, GB Pant University of Agriculture and Technology, Pantnagar 263145, UP, India) **Sterols and fatty acids composition of leaves of Anagallis arvensis Linn..** *Indian Drugs*, v. 28(11): p.527-528, 1991 (9 ref, Eng).

From the leaves of *A.arvensis*alpha-spinasterol (59.8 percent), delta7-avenasterol (14.54 percent), dihydrospinasterol (8.28 percent), beta-sitosterol (8.0 percent) and stigmasterol (5.12 percent), palmitic acid (43.3 percent), stearic acid (1.88 percent), oleic acid (7.97 percent), linoleic (4.16 percent) and linolenic acid (37.66 percent) were isolated.

**9201-0521** Sheen, L.J., Tsaiou, Y.H., Tsai, S.J.(Graduate Institute of Food Science, National Chung-Hsing University, Taichung, Taiwan, ROC) **Flavour characteristic compounds found in the essential oil of Ocimum basilicum L. with sensory evaluation and statistical analysis.** *Journal of Agricultural and Food Chemistry*, v. 39(5): p. 939-943, 1991 (23 ref, Eng).

Oils obtained from various parts of the basil plant were categorised into five groups by preference ranking test of their aromas. Among them fresh leaf flower-leaf oil was the most preferable, while that of the stem was the least preferable. Accordingly, methyl chavicol and 1-octen-3-ol were the volatile components. High statistical correlations were found among the volatile components of basil oil during sensory evaluation. A regression equation, which included four compounds i.e. 1-octen-3-ol, alpha-muurolene germacrene B, and methyl eugenol and which could explain the differences among the six kinds of oils about 70 percent, was obtained by SAS stepwise regression analysis.

**9201-0522** Shekhani, M.S., Shah, P.M., Khan, K.M., Atta-ur-Rahman* (H.E.J. Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **New eudesmanolides from Sphaeranthus indicus.** *Journal of Natural Products*, v. 54(3): p. 882-885 , 1991 (15 ref, Eng).

Three new eudesmanolides, 11alpha, 13-dihydro-3alpha,7alpha-dihydroxyfrullanolide; 11alpha, 13-dihydro-7alpha, 13-dihydroxyfrullanolide, and 11alpha, 13-dihydro-7-alpha-hydroxy-13-methoxyfrullanolide, were isolated from the flowers of *S.indicus*. Their structures were determined by 2D NMR and other spectroscopic techniques.

**9201-0523** Shima, K., Toyota, M., Asakawa, Y.(Institute of Pharmacognosy, Tokushima Bunri University, Yamashiro-cho, Tokushima 770, Japan) **Phenanthrene derivatives from the medullae of Juncus effusus.** *Phytochemistry*, v. 30(9): p. 3149-3151, 1991 (10 ref, Eng).

The medullae of *J.effusus* yielded two new phenanthrene derivatives, dehydroeffusol and dehydroeffusal. Their structures were determined by spectral data.

**9201-0524** Shiota, H.(Osaka Factory, Shiono Koryo Limited, 5-17-75, Nitaka; Yodogawa-ku, Osaka, 532, Japan) **Volatile components of pawpaw fruit (Asimina triloba).** *Journal of Agricultural and Food Chemistry*, v. 39(9): p. 1631-1635, 1991 (27 ref, Eng).

Volatile components of pawpaw (*A.triloba*) fruit were mainly ethyl esters (hexanoate, 50.2 percent, octanoate 19.3 percent, butanoate 8.5 percent and decanoate 1.3 percent) which were accompanied by methyl esters. Butane 2,3-diol monoesters and 3-hydroxy butan-2-one esters were also detected and these esters except 3-acetoxybutan-2-one were reported to be present in nature for the first time. The effect of fruit maturity on volatile aroma composition was also given.

**9201-0525** Shukla, A., Farooqui, A.H.A. , Shukla, Y.N.(Central Institute of Medicinal and Aromatic Plants, Lucknow 226016, UP, India) **Growth inhibitors from Artemisia annua.** *Indian Drugs*, v. 28(8): p. 376-377, 1991 (6 ref, Eng).

From the aerial parts of *A.annua*, alongwith growth inhibitors, ABA, and Me-ABA, a new compound bis(1-hydroxy-2-methylpropyl) phthalate were isolated.

**9201-0526** Singh, S.K., Tripathi, V.J., Singh, R.H.(Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, UP, India) **New pentacyclic triterpene acid from Lantana indica.** *Journal of Natural Products*, v. 54(3): p. 755-758 , 1991 (16 ref, Eng).

A new pentacyclic triterpene acid (C30H44O4, mp 248-48 degrees C) has been isolated from the roots of *L.indica* and its structure has been established as 24-formyl-3-oxoolean-12-en-28-oic acid by chemical and spectroscopic methods.

**9201-0527** Skaltsa-Diamantidis, H., Tsitsa-Tzardi, E. , Tzakou, O. (Laboratory of Pharmacognosy, University of Athens, 20 Hippocratous Strasse, GR-10679 Athens, Greece) **Analysis of the essential oil of Melittis melissophyllum L. subsp. albida Guss.** *Journal of Essential Oil Research*, v. 3(5): p. 367-368 , 1991 (3 ref, Eng).

The essential oil of *M.melissophyllum* subsp *albida* was analyzed by capillary gas chromatography and mass spectrometry. The main constituents were chrysanthenyl acetate (12.33 percent), alpha-terpineol (17.81 percent) and caryophyllene oxide (10.83 percent).

**9201-0528** Slavik, J., Slavikova, L.(Department of Medical Chemistry and Biochemistry, Medical Faculty, Masaryk University, 66243 Brno, Czechoslovakia) **Polar alkaloids from Papaver orientale L..** *Collection of Czechoslovak Chemical Communications*, v. 56(7): p. 1534-1538, 1991 (14 ref, Eng).

Corytuberine and quaternary alkaloids N-methyltheb ainium hydroxide, N-methylisothebainium hydroxide, and magnoflorine as iodides have been isolated for the first time from the fraction of strongly polar alkaloids obtained from aerial parts and roots of *P.orientale*. The weakly polar fractions contain oripavine, thebaine, isothebaine, and alpinigenine as dominant components. Small amounts of bracteoline, isoboldine, scoulerine, papaverrubines G,A,B,D, and C, and traces of palmatine and coptisine have also been detected.

**9201-0529** Soni, P.L., Sharma, H., Sharma, S.(Chemistry of Forest Products, Minor Forest Products Division, Forest Research Institute, Dehra Dun, 248006, UP, India) **Structure elucidation of the oligosaccharides isolated from Leucaena leucocephala (Subabul) gum polysaccharides.** *Indian Journal of Chemistry*, v. 30B(9): p. 843-848 , 1991 (20 ref, Eng).

A water soluble polysaccharide has been isolated from the gum of *L.leucocephala*. On hydrolysis, it yielded galactose, arabinose, rhamnose and glucuronic acid, whereas, partial hydrolysis yielded di-, tri, -tetra- hexa- and hepta-saccharides. Disaccharides indicate the presence of 1 to 3 linked rhamonose units. Trisaccharides and tetrasaccharide are linear oligomers containing 1 to 3 and 1 to 6 linked galactose moieties respectively. Hexasaccharide has a branched structure. Hepta saccharide has been found to have a linear side chain frame work constituted of two units of arabinose and five units of galactose with 1 - 3 linkage.

**9201-0530** Stelljes, M.E., Kelley, R.B. , Molyneux, R.J., Seiber, J.N.(Harding Lawson Associates, 7655 Redwood Blvd., Novato, California 94948, USA) **GC-MS determination of pyrrolizidine alkaloids in four Senecio**

**species.** *Journal of Natural Products*, v. 54(3): p. 759-773 , 1991 (22 ref, Eng).

Four *Senecio* species were analyzed by GC-MS for their pyrrolizidine alkaloid content. This is the first published report of pyrrolizidine alkaloid in *S.serra*, *S.dimorphophyllus*, and *S.hydrophyllus*. Previously undetermined pyrrolizidine alkaloids from *S.mikanioides* were also tentatively identified. GC-MS analyses showed the presence of the stereoisomers senecionine and integerrimine in *S.dimorphophyllus* and complex mixtures of monoester and diester pyrrolizidine alkaloid in the other three species. Tentative structural identification were made of ten new pyrrolizidine alkaloids. All three species contained both saturated and unsaturated pyrrolizidine alkaloids, and all had at least ten individual alkaloids. The potential toxicity of the three species to range animals is discussed.

**9201-0531** Suarez, M., Duque, C., Wintoch, H. , Schreier, P. (Departmento de Quimica, Apartado Aereo 14490, Universidad Nacional de Colombia, Bogota, Columbia) **Glycosidically bound aroma compounds from the pulp and the peelings of Lulo fruit (Solanum vestissimum D.).** *Journal of Agricultural and Food Chemistry*, v. 39(9): p. 1643-1645, 1991 (19 ref, Eng).

Gas chromatography and GC-MS identifications of bound aroma compounds from the pulp and the peelings of lulo fruit *S.vestissimum* were achieved after isolation of extracts obtained by ambenlite XAO-Z adsorption and methanol elution followed by hydrolysis with commercial pectinase enzymes. Aglycons identified in the peelings mainly consisted of terpenoids with enantiomerically pure (R)-(-)-linalool as the main constituent, aglycons exhibiting aromatic structures, in particular benzoic acid and methyl benzoate. Chromatography revealed linalool beta-D-glucoside as the bound conjugate of linalool in the peelings.

**9201-0532** Sugiyama, M., Kikuchi, M.*(Tohoku College of Pharmacy, 4-4-1 Komatsushima, Aoba-ku, Sendai, Miyagi 981, Japan) **Phenolic glycosides from Osmanthus asiaticus.** *Phytochemistry*, v. 30(9): p. 3147-3149, 1991 (6 ref, Eng).

Two new phenolic glycosides, methoxyhydroquinone-4-O-beta-D-apiosyl-(1 to 6)-O-beta-D-glucopyranoside and 2-hydroxy-4-(2-hydroxyethyl)phenyl 6-O-trans-feruloxyl-beta-D-glucopyranoside, were isolated together with two known phenolic glucosides, tachioside and de-p-coumaroylibotanolide, from the leaves of *O.asiaticus*. The structures were elucidated on the basis of chemical and spectrosocpic evidence.

**9201-0533** Sun, W.J., Zhang, D.K., Sha, Z.F. , Zhang, H.L., Zhang, X.L.(Shaanxi Provincial Institute for Drug Control, Xian 710061, China) **Studies on the saponin constituents of Kalopanax septemlobus (Thunb.) Koidz..** *Acta Pharmaceutica Sinica*, v. 25(1): p. 29-34, 1990 (11 ref, Chi, Eng).

Two crystalline components I and II were isolated from the total saponin of *K.septemlobus*, of which II was identified as kalopanax saponin A and I was named as kalopanax saponin C and elucidated as 3-O-{alpha-L-rhamnopyranosyl-(1-2)-alpha-L-arabinopyranosyl}-hedragenin-28-{alpha-L-rhamnopyranosyl-(1-2)-beta-D-glucopyranosyl (1-6)-beta-D glucopyransyl}ester on the basis of spectral data (13C NMR, 1H NMR, IR and FAB-MS).

**9201-0534** Takaishi, Y., Tamai, S., Nakano, K. , Murakami, K., Tomimatsu, T.(Faculty of Pharmaceutical Sciences, University of Tokushima, Shomachi 1-78, Tokushima 770, Japan) **Structures of sesquiterpene polyol esters from Tripterygium wilfordii var. regelii.** *Phytochemistry*, v. 30(9): p. 3027-3031, 1991 (10 ref, Eng).

Seven new dihydroagarofuran derivatives, triptogelin E-1, E2, E-3, E-4, G-1, C-4 and D-1 have been isolated from *T.wilfordii* var. *regelii*. Their structures have been established on the basis of spectrosocpic and chemical evidence.

**9201-0535** Takeoka, G.R., Buttery, R.G. , Teranishi, R., Flath, R.A., Guntert, M.(Western Regional Research Center, Agricultural Research Service, US Department of Agriculture, 800 Buchanan Street, Albany, California 94710 USA) **Identification of additional pineapple volatiles.** *Journal of Agricultural and Food Chemistry*, v. 39(10): p. 1848-1851, 1991 (21 ref, Eng).

The volatiles of pineapple (*Ananas sativus*) essence were isolated by liquid-liquid extraction, fractionated on neutral alumina, and analysed by high-resolution gas chromatography and coupled gas chromatography/mass spectrometry (GC/MS). Twenty-six constituents (1 tentative) were identified for the first time in pineapple including the following sulfur compounds: methyl 3-(methylthio)-(E)-2-propenoate, methyl-3-(methylthio)-(Z)-2-propenoate, ethyl 3-(methylthio)-(E)-2-propenoate, ethyl 3-(methylthio)-(Z)-2-propenoate, methyl 4-(methylthio)butanoate,ethyl 4-(methylthio)butanoate (tentative), and dimethyl trisulfide. Their odor contribution to pineapple aroma is assessed.

**9201-0536** Tan, R.X., Jia, Z.J.*, Jakupovic, J., Bohlmann, F., Huneck, S.(Department of Chemistry, Lanzhou University, Lanzhou 730000, P.R. China) **Sesquiterpene lactones**

**from Artemisia rutifolia.** *Phytochemistry*, v. 30(9): p. 3033-3035, 1991 (15 ref, Eng).

Continuous phytochemical investigation of the aerial parts of *A.rutifolia* afforded further, in addition to several known compounds, two new highly oxygenated guaianolides and three seco-guaianolides. The structures were elucidated by high field NMR techniques and a few chemical transformations.

**9201-0537** Tanker, M., Kurucu, S., Citoglu, G.(Department of Pharmacognosy, Faculty of Pharmacy, Ankara University, 06100 Ankara, Turkey) **On the volatile oil of Mentha spicata L. subsp. spicata cultivated in Turkey.** *Turkish Journal of Pharmacy*, v. 1(2): p. 117-120 , 1991 (4 ref, Eng).

From the volatile oil (yield 1.2-1.3 percent) of *M.spicata* subsp. *spicata*, carvone (68-69 percent) and limonene (4-6 percent) were isolated as the major components.

**9201-0538** Thippeswamy, H.T., Raina, P.L.(Department of Nutrition and Food Safety, CFTRI, Mysore 570003, Karnataka, India) **Lipids of Kokum, Garcinia indica, and Dhupa, Veteria indica, Pt.II.** *Journal of Food Science and Technology*, v. 28(4): p. 195-199, 1991 (33 ref, Eng).

Total lipids of Kokum and Dhupa seed flour with CHCl3; methanol (2:1 v/v) was resolved into neutral, glyco and phospholipids, using chromatography. Each of these fractions were further characterised, quantitated and fatty acid composition determined. Results show total lipids of Kokum and Dhupa contained a major proportion of neutral lipids (75 to 80 percent) comprising predominantly of triglycerides (84.1 to 68.7 percent). The glycolipids 4.0 percent of Kokum were digalactosyl diglyceride (30.9 percent) and monogalacotosyl diglyceride (19.3 percent). Major glycolipids of Dhupa were steroglycoside (23.5 percent) and acylsterolglycoside (15.6 percent). The phospholipid contents were identical in both Kokum and Dhupa having PE as major consituent. All the lipid fractions showed palmitic and steamic acids as major fatty acids. NSL, New Delhi.

**9201-0539** Tumen, G.(Uludag University, Faculty of Education, Department of Biology, 10100 Balikesir, Turkey) **The volatile constituents of Satureja cuneifolia.** *Journal of Essential Oil Research*, v. 3(5): p. 365-366 , 1991 (6 ref, Eng).

The essential oil of *S.cuneifolia* was examined by GC/MS. Thirty-four compounds were characterized in the oil of which the major components were gamma-terpinene(13.04 percent), p-cymene(15.76 percent) and carvacrol (46.36 percent).

**9201-0540** Uhrin, D., Proksa, B.*, Zhamiansan, J.(Institute of Chemistry, Slovak Academy of Sciences, 842 38 Bratislava, Czechoslovakia) **Lepenine and denudatine: New alkaloids from Aconitum kusnezoffii.** *Planta Medica*, v. 57(4): p. 390-391, 1991 (10 ref, Eng).

From the aerial parts of *A.kusnezoffii* collected in Mongolla, two compounds lepenine and denudatine were isolated. The IR spectra, H- and C-NMR spectra and comparison of the shift data indicated that both the compounds possess the atisine skeleton and differ in the number of hydroxy groups.

**9201-0541** Upadhyay, S.C., Khosa, R.L., Sharma, D.N., Kumar, M., Chansauria, J.P.N.(Department of Pharmaceutics, Banaras Hindu University, Varanasi 221005, UP, India) **Total glycoside content and antistress activity of Indian and Mauritius Centella asiatica- a comparision.** *Indian Drugs*, v. 28(8): p. 388-389, 1991 (3 ref, Eng).

Total glycoside content of *C.asiatica* of Mauritian origin was found to be higher (10.7) than the Indian sample (7.8). Such a difference has been attributed to the environmental conditions, main among them being salinity of the soil. The adrenocortical response to immobilization stress pretreated with the Mauritian and Indian samples was significant.

**9201-0542** Vasanth, S., Natarajan, M. , Sundaresan, R., Bhima Rao, R., Kundu, A.B.(Captain Srinivasa Murti Drug Research Institute for Ayurveda, Arumbakkam, Madras 600106, TN, India) **Ellagic acid from Oroxylum indicum Vent.** *Indian Drugs*, v. 28(11): p. 507, 1991 (9 ref, Eng).

From the root bark of *O.indicum* very small quantity of ellagic acid was isolated for the first time.

**9201-0543** Vasanth, S., Kundu, A.B., Panda, S.K., Patra, A.(Captain Srinivasa Murti Drug Research Institute for Ayurveda, (CCRAS), Arumbakkam, Madras 600 106, TN, India) **Vicoside A, a 28-nortriterpenoid glucoside from Vicoa indica.** *Phytochemistry*, v. 30(9): p. 3053-3055, 1991 (13 ref, Eng).

Vicoside A, a new 28-nortriterpenoid glucoside has been isolated from the alcohol extract of the aerial parts of *V.indica* and its structure was elucidated as 2beta,3beta,16beta,23-tetrahydroxy-17beta-formyloxy-28-norolean-12-ene 3-O-beta-D-glucopyransoside by spectral data and chemical conversions.

**9201-0544** Wang, D.Q., Feng, B.S., Wang, X.B. , Yang, C.R., Zhou, J.*(Xian Botanical Garden, Xian 710061, China) **Further study on dammarane saponins of leaves of Panax japonicus var. major collected in Qinling**

**mountains China.** *Acta Pharmaceutica Sinica*, v. 24(8): p. 633-636, 1989 (4 ref, Chi, Eng).

Two new dammarane saponins are isolated from the leaves of *P.japonicus* var *major*. By means of FAB-MS and 13C NMR, their structures were elucidated as dammar-22(23)-ene-3beta,6alpha,12beta,20(S),24 -pentaol-(20-O-beta-D-glucopyranosyl)-6-O-alpha-L-rh amnopyranosyl(1-2) -beta-D-glucopyranoside (majorosides F5) and dammar-23(24)-ene-3beta,6alpha,12beta,20(S),25-pentaol-(20-O-beta-D-gl ucopyranosyl)-6-O-alpha-L-rhamnopyranosyl(1-2)-beta-D-glucopyranoside (majoroside F6).

**9201-0545** Wang, D.Q., Fan, J., Feng, B.S. , Li, S.R., Wang, X.B., Yang, C.R.* , Zhou, J.(Xian Botanical Garden, Xian 710 061, China) **Studies on saponins from the leaves of Panax japonicus var. bipinnatifidus (Seem.) Wu et Feng.** *Acta Pharmaceutica Sinica*, v. 24(8): p. 593-599, 1989 (10 ref, Eng, Chi).

Two new saponins, bipinnatifidusoside F1 and F2, were isolated along with eleven known saponins from the dried leaves of *P.japonicus* var. *bipinnatifidus* collected in the range of Qinling Mountains in China. By spectrometric analysis their structures were elucidated. The known saponins were identified as ginsenoside F1,F2,F3,Rg2,Re,Rd,Rb1,Rb3,24(S)-pseudoginsenoside F11,panasenoside and majoroside F1.

**9201-0546** Wang, H.B., Yu, D.Q., Liang, X.T. , Watanabe, N., Tamai, M.*, Omura, S.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **The structures of yemuoside YM10 and YM12 from Stauntonia chinensis.** *Acta Pharmaceutica Sinica*, v. 24(6): p. 444-451, 1989 (10 ref, Eng, Chi).

Two new nortriterpenoid saponins, named yemuoside YM10 (C58H92O25 mp 215-219 degree C) and YM12 (C52H32O21, mp 200-204 degree C), were isolated from *S.chinensis*. A new prosaponin (C40H62O11, mp 243-246 degree C) was isolated from the cleavage of ester-glycoside linkage. Their chemical structures were elucidated by means of chemical and spectrometric analysis.

**9201-0547** Wang, H.B., Yu, D.Q., Liang, X.T.*(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **Yemuoside I, a new nortriterpenoid glycoside from Stauntonia chinensis.** *Journal of Natural Products*, v. 54(4): p. 1097-1101 , 1991 (15 ref, Eng).

A new nortriterpenoid glycoside, named yemuoside I, was isolated from whole plant of *S.chinensis* and its structure determined.

**9201-0548** Wang, H.K., He, K., Xu, H.X. , Zhang, Z.L., Wang, Y.F., Kikuchi, T. , Tezuka, Y.(Shanghai College of Traditional Medicine, Shanghai 200032, China) **The structure of astrachrysoside A and the study of 2D-NMR on astrasieversianin XV and 7,2'dihydroxy-3'-4'-dimethoxy-isoflavane-7-O-beta-D-glycoside.** *Acta Pharmaceutica Sinica*, v. 25(6): p. 445-450, 1990 (4 ref, Chi , Eng).

Six compounds were isolated from the root of *A.chrysopterus*, of which one was a new triterpenoid glycoside, named astrachrysoside. Its structure was elucidated as 3-O-[alpha-L-rhamnopyranosyl (1 to 2)beta-D-xylopyranosyl]-cycloastragenol on the basis of known compounds, astrasieversianin XV (II),7,2'-dihydroxy-3',4'-dimethoxy isoflavone-7-O-beta-D-glucoside (III), soyasaponin, dauco-sterol and beta sitosterol. Full assignment of the chemical shift signals of II and III were established by various 2D-NMR techniques.

**9201-0549** Wang, M.T., Li, Y.Z., Zhao, T.Z. , Ji, C.R.*, Feng, W.S. , Liu, Y.Z.(Henan College of Traditional Chinese Medicine, Zhengzhou 450 003, China) **A new lignanolide from the leaves of Daphne genkwa.** *Acta Pharmaceutica Sinica*, v. 25(11): p. 866-868 , 1990 (6 ref, Chi, Eng).

A new (-)-4-oxo-2,6-bis-(3',4'-methylenedioxy phenyl)-3, 7-dioxabicyclo[3,3,0] octane lignan, genkdaphin was isolated from the leaves of *D.genkwa* (mp 118 to 119.5 degree C, C20H16O7). On the basis of UV,IR,MS, 1H and 13CNMR spectral analysis, the structure of the genkdaphin has been established as (-)-4-oxosesamin.

**9201-0550** Wang, X.F., Lu, W.J., Zheng, Q.T. , He, C.H., Chen, J.Y. , Wei, R.F. , Wen, Y.H., Tao, Y.P.(Guangxi Institute of Traditional Medical and Pharmaceutical Sciences, Nanning 530 022, China) **Coetsoidin A, a new diterpenoid from Rabdosia coetsoides C.Y.Wu.** *Acta Pharmaceutica Sinica*, v. 24(7): p. 522-524, 1989 (3 ref, Eng, Chi).

From the leaves of *R.coetsoides*, a new diterpenoid, coetsoidin A was isolated and its structure was established by spectroscopic and X-ray diffraction analysis. It is the first instance of a kaurene type diterpenoid possessing alpha,beta-unsaturated ketone functionality in ring B.

**9201-0551** Wankhade, S., Shinde, G.B., Gawande, A.G., Shankhapat, K.V.(P G Department of Microbiology, LIT Campus, M G Road, Nagpur 440010, Maharashtra, India) **Isolation, purification and characterization of tomatine-a steroidal glycoalkaloid from tomato (Lycopersicon esculentum) leaves.** *Indian Drugs*, v. 28(8): p. 375-376, 1991 (14 ref, Eng).

Tomatine (0.5 g/kg yield) was isolated from fresh tomato leaves.

**9201-0552** Weenen, H., Nkunya, M.H.H., Mgani, Q.A., Posthumus, M.A. , Waibel, R. , Achenbach, H.(Quest International, P.O. Box 2, 1400 Bussum, The Netherlands) **Tanzanene, a spiro benzopyranyl sesquiterpene from Uvaria tanzaniae Verdc.** *Journal of Organic Chemistry*, v. 56(20): p. 5865-5867 , 1991 (10 ref, Eng).

Tanzanene (mp 84-85 degree C), was isolated from the root bark of *U.tanzaniae* and its structure determined by high-resolution NMR. The molecular structure of tanzanene can be thought of as a cycloaddition product of alloaromadendrene and the quinone methide of O-hydroxytoluene. The known dihydrohalcones uvaretin, diuvaretin, chamuvaretin, and isotriuvaretin were also isolated and identified.

**9201-0553** Weyerstahl, P., Marschall-Weyerstahl, H. , Schroder, M., Brendel, J., Kaul, V.K.(Institut fur Organische Chemie, Technische Universitat Berlin, Stasse des 17, Juni 135, D-1000 Berlin 12, Germany) **Functionalised silphiperfolenes from Artemisia laciniata.** *Phytochemistry*, v. 30(10): p. 3349-3352, 1991 (9 ref, Eng).

Medium polar, high boiling fractions of the essential oil from *A.laciniata* afforded (3S,4S,7R,9R)-silphiperfol-5-en-3-ol as a major constituent. The structure was elucidated by NMR studies and by identification of its oxidation products. The isomeric alcohol (3S,4S,7S,9R-silphiperfol-5-en-3-ol and the corresponding ketones are minor components, silphiperfol-5-enes, (3R,4S,7R,9R)-and (3R,4S,7S,9R)-silphiperfol-5-en-3-ol, and silphiperfol-6-ene-3,5-dione are trace constituents of the oil.

**9201-0554** Winterhalter, P., Harmsen, S. , Trani, F.(Lehrstuhl fur Lebensmittelchemie, Universitat Wurzburg, Am Hubland 8700 Wurzburg, Germany) **A C13-Norisoprenoid gentiobioside from quince fruit.** *Phytochemistry*, v. 30(9): p. 3021-3025, 1991 (22 ref, Eng).

The beta-D-gentiobioside [beta-D-glucopyranosyl(1-6)-beta-D-glucopyranoside] of 3-hydroxy-beta-ionol has been isolated and characterized in quince *Cydonia oblonga* fruit through spectral and chemical studies. Model experiments carried out with this new natural compound revealed its important role as precursor of a number of C13-norisoprenoid flavour compounds of quince essential oil.

**9201-0555** Wu, J.Z., Pan, X.P., Lou, M.A. , Wang, X.S., Ling, D.K.* (National Institute for the Control of Pharmaceutical and Biological Products, Beijing 100050, China) **Studies on the chemical constituents of Fritillaria in Hubei. X. Isolation and identification of alkaloids from Fritillaria ebeiensis var purpurea G.D.Yu et P.Li.** *Acta Pharmaceutica Sinica*, v. 24(8): p. 600-605, 1989 (10 ref, Chi, Eng).

The bulb of *F.ebeiensis* var *purpurea*, commercially available as the substitute for the principal Chinese traditional medicine "Beimu" afforded seven C-nor-D-homo steroidal alkaloids (1-VII). I-IV have been identified as the known alkaloids. The alkaloid VI (C27H43NO2, mp 186-188 degree C) named zicbeimine, is a new alkaloid, the structure of which has been established as 5alpha,14alpha-cevanine-13,17-dehydro-3alpha,6beta-diol on the basis of its IR, 1H-NMR, 13C-NMR and mass spectra).

**9201-0556** Wu, Y.C., Duh, C.Y., Chang, F.R. , Chang, G.Y., Wang, S.K., Chang, J.J., McPhail, D.R., McPhail, A.T., Lee, K.H.*(Department of Microbiology, Kaobsiung Medical College, Kaobsiung 80708, Taiwan, Republic of China) **Crystal structure and cytotoxicity of goniodiol-7-monoacetate from Goniothalamus amuyon.** *Journal of Natural Products*, v. 54(4): p. 1077-1081 , 1991 (10 ref, Eng).

The stryrylpyrone, goniodiol-7-monoacetate {6R-(7R,8R-dihydro-7-acetoxy-8-hydroxystyryl)-5-,6-dihydro -2-pyrone}, has been isolated from *G.amuyon*, and its detailed molecular structure has been determined by X-ray crystallographic anaylsis. Goniodiol-7-monoacetate showed potent (ED50 values lessthan 0.1 micro g/ml)cytotoxicities against KB, P-388, RPMI, and TE671 tumor cells.

**9201-0557** Xu, D.M., Wang, S.Q., Huang, E.X. , Xu, M.L., Wen, X.G. (Institute of Traditional Chinese Medicine and Materia Medica of Jilin Province, Chang Chun 130021, China) **Structure of pingbeidinoside, an alkaloid isolated from the stems and leaves of Fritillaria ussuriensis Maxim.** *Acta Pharmaceutica Sinica*, v. 24(9): p. 668-672, 1989 (6 ref, Chi, Eng).

A new steroid alkaloid glucoside, pingbeidinoside, was isolated from the stem and leaf of *F.ussuriensis* by column chromatographic techniques. On the basis of the IR, MS, 1H NMR and 13C NMR spectra of pingpeidinoside and products of its transformation, the structure of pingbeidinoside has been established as 3beta,16alpha, 20-trihydroxy-delta5-22,26-epiminocholestane-25-O-beta-D -glucoside.

**9201-0558** Xu, D.M., Arihara, S., Shoji, N. , Yang, X.W., Huang, E.X., Li, C.S.(Faculty of Pharmaceutical Sciences, Tokushima, Bunri University, Tokushima, Japan) **Isolation and identification of yibeinoside A.** *Acta Pharmaceutica Sinica*, v. 25(10): p. 795-797 , 1990 (7 ref, Chi, Eng).

Two steroidal alkaloids were isolated from the bulb of *Fritillaria pallidiflora* by column chromatographic techniques. One of them was identified as known alkaloid sinpeinine A, another alkaloid was found to be a new compound named Yibeinoside A, which is the sinpeinine-3-O-beta-glucoside. Its structure was confirmed on the basis of chemical and spectral data (IR, MS, HNMR, CNMR).

**9201-0559** Yang, J.S., Wang, Y.L., Su, Y.L. , He, C.H., Zheng, Q.T. , Yang, J.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **Studies on the chemical constituents of Aquilaria sinensis (Lour.) Gilg.III. Elucidation of the structure of isobaimuxinol and isolation and identification of the constituents of lower boiling fraction of the volatile oil.** *Acta Pharmaceutica Sinica*, v. 24(4): p. 264-268, 1989 (6 ref, Eng, Chi).

A new sesquiterpenoid, named isobaimuxinol,(C15H26O2, mp 73-75 degree C), was isolated from the volatile oil of *A.sinensis*. Based on spectral (IR, 1H-NMR, 13C-NMR and 2D-NMR as well as MS) analysis its structure was identified as isobaimuxinol. The relative stereochemistry of isobaimuxinol was determined by X-ray crystallograhy. In addition, four known compounds, benzylacetone, p-methoxybenzylacetone, anisic acid and beta-agarofuran were isolated and identified from the lower boiling fraction of the volatile oil of this plant. These compounds were obtained for the first time from this plant.

**9201-0560** Yang, J.S., Wang, Y.L., Su, Y.L.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Studies on the chemical constituents of Aquilaria sinensis (Lour.) Gilg. IV. Isolation and characterization of 2-(phenylethyl_chromone derivatives.** *Acta Pharmaceutica Sinica*, v. 24(9): p. 678-683, 1989 (6 ref, Chi, Eng).

Six chromone derivatives were isolated from the ether soluble fraction of the alcoholic extract of *A.sinensis*. On the basis of spectrometric data (UV, IR, 1H NMR and 13C NMR as well as MS) and chemical synthesis one of them was found to be a new chromone, 6-hydroxy-2-[2-(4'-methoxyl-phenyl)ethyl]chromone and other five were known chromones. These compounds were obtained for the first time from this plant.

**9201-0561** Yang, J.S., Wang, Y.L., Su, Y.L.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Studies on the chemical constituents of Aquilaria sinensis (Lour.) Gilg. V. Isolation and characterization of three 2-(2phenylethyl) chromone derivatives.** *Acta Pharmaceutica Sinica*, v. 25(3): p. 186-190, 1990 (3 ref, Chi, Eng).

Three 2-(2-phenylethyl) chromone derivatives were isolated from the ethyl acetate soluble fraction of the alcoholic extract of *A.sinensis* by silica gel chromatography. Two of them are new compounds, their structures were elucidated as 5,8-dihydroxy-2-(2-p-methoxyphenylethyl) chromone and 6,7-dimethoxy-2-(2-p-methoxyphenylethyl) chromone. The known compound isolated for the first time from this plant, was identified as 5,8-dihydroxy-2-(2-phenylethyl)-chromone.

**9201-0562** Ye, J.H., Zhou, Y.L., Huang, Z.H. , Picot, F.(Shanghai Institute of Materia Medica, Academia Sinica, 319 Yue-Yang Road, Shanghai, 200 031, China) **Alkaloids from Melodinus suaveolens.** *Phytochemistry*, v. 30(9): p. 3168-3170, 1991 (9 ref, Eng).

Fourteen alkaloids were isolated from the trunk of *M.suaveolens*. Thirteen of them were identified as delta14-vincine, vindolinine, 11-methoxytabersonine, vincadifformine, hazuntine, 11-hydroxytabersonine, 11-methoxyvincadifformine, cathovalinine, vincoline, 19R-hydroxytabersonine, 11-methoxy-19R-hydroxytabersonine, 11,19R-dihydroxytabersonine and tabersonine. The last one is a new alkaloid, named suaveolenine; its structural elucidation was achieved by means of detailed spectral analysis.

**9201-0563** Yesilada, E., Houghton, P.J.(Gazi University, Faculty of Pharmacy, Ankara, Turkey) **Steroidal saponins from the rhizomes of Polygonatum orientale.** *Phytochemistry*, v. 30(10): p. 3405-3409, 1991 (11 ref, Eng).

Two steroidal compounds were isolated from the fresh rhizomes of *P.orientale* and their structures elucidated as sceptrumgenin 3-O-beta-D-lycotetraoside, akyrogenin 3-O-beta-D-glucopyranosyl(1-3)-[beta-D-glucopyranosyl -(1-2)]-beta-D-gl ucopyranosyl-(1-4)-beta-D-galactopyranoside (spiroakyroside), on the basis of physical and chemical investigations.

**9201-0564** Yi, Y.H., Huang, X.(College of Pharmacy, Second Military Medical University, Shanghai 200 433, China) **Isolation and identification of three new saponins from Phytolacca esculenta.** *Acta Pharmaceutica Sinica*, v. 25(10): p. 745-749 , 1990 (10 ref, Chi, Eng).

From the root of *P.esculenta* three new triterpenoid saponins, esculentoside O, P and Q have been isolated and identified as 3-O-beta-D-xylopyranosyl-esculentic acid, 3-O-beta-D-glucopyranosyl-jaligonic acid and 3-O-[beta-D-glucopyranosyl(1 to 4)-beta-D-xylopyranosyl(1 to 4)-beta-D-glucopyranosyl]-jaligonic acid respectively.

**9201-0565** Yu, Y.N., Li, X.(Shenyang College of Pharmacy, Shenyang 110015, China) **Studies on the chemical constituents of Brucea javanica (L.) Merr.** *Acta Pharmaceutica Sinica*, v. 25(5): p. 382-386, 1990 (16 ref, Chi, Eng).

An alkaloid and a quassinoid were isolated from the fruit of *B.javanica*, and were identified as 4-ethoxycarbonyl-2-quinolone (1) and bruceine 1(2). Compound 1 was found from natural resource for the first time. The structure of the new compound 2 was elucidated on the basis of spectral data and chemical evidence. Three well known compounds vanillic acid, quercetin-3-O-beta-D-galactoside, and luteolin-7-O-beta-D-glucoside were also isolated. All of them were first reported to occur in the *Brucea* genus.

**9201-0566** Yuan, S.Q., Gu, G.M., Wei, T.T.(Academy of Military Medical Sciences, Beijing 100850, China) **Studies on the alkaloids of Gynura segetum (Lour.) Merr.**. *Acta Pharmaceutica Sinica*, v. 23(3): p. 191-197, 1990 (11 ref, Chi, Eng).

Six alkaloids were isolated from *G.segetum*. Four of them were identified. Alkaloids I and II were identified as known senecionine and seneciphylline, respectively. Alkaloids III and IV were found to be new compounds named seneciphyllinine and (E)-seneciphylline, respectively. Their structures were confirmed on the basis of spectral data (UV, IR, MS, 1H NMR, 13C NMR, C-H COSY).

**9201-0567** Yuwai, K.E., Rao, K.S., Kaluwin, C. , Jones, G.P., Rivett, D.E.(Department of Chemistry, University of Papua New Guinea, PO Box 320, Papua New Guinea) **Chemical composition of Momordica charantia L. fruits.** *Journal of Agricultural and Food Chemistry*, v. 39(10): p. 1762-1763, 1991 (12 ref, Eng).

The chemical composition of bitter gourds (*M.charantia*) was analyzed. The bitter gourds yielded on extraction with chloroform-methanol 0.76 percent lipids (dry weight), which were separated into nonpolar lipids (38.81 percent), glycolipids (35.80 percent), and phospholipids (16.40 percent) by silicic acid column chromatography. The mineral and amino acid analysis showed that the bitter gourds contained nutritionally useful quantities of most of the essential minerals and amino acids. The predominant fatty acid was alpha-eleostearic acid in nonpolar lipids, linolenic acid in glycolipids, and palmitic acid in phospholipids.

**9201-0568** Zeng, L., Zhang, R.Y., Wei, P. , Wang, D.*, Gao, C.Y., Lou, Z.C.(School of Pharmaceutical Science, Centeral Laboratory, Beijing Medical University, Beijing 100 083, China) **New triterpenoidal sapogenins from the roots of Glycyrrhiza yunnanensis.** *Acta Pharmaceutica Sinica*, v. 25(7): p. 515-521, 1990 (14 ref, Eng, Chi).

Two new pentacyclic triterpenoidal sapogenins of oleanane type, namely glyyunnansapogenin A(I) and glyyunnansapogenin B(II), together with a known compound beta-sitosterol were isolated and characterized from the roots of *G.yunnanensis* collected in Yunnan Province, China. The structures of I and II were established by spectral analyses of 1R, 1HNMR, 13CNMR,MS, CD and ORD. Glyyunnansapogenin A (I) was proved to be 3beta,24-dihydroxy-16-oxo-olean-12-en-29-oic acid and glyyunnansapogenin B (II) 3beta,21alpha,24-trihydroxy-olean-12-en-3-oic acid respectively.

**9201-0569** Zeng, L., Zhang, R.Y., Wang, D.*, Pang, J.H. , Zhang, Z.L., Gao, C.Y., Lou, Z.C.(School of Pharmaceutical Sciences, Analysis and Calculation Center, Beijing Medical University, Beijing 100 083, China) **Glyyunnanprosapogenin and glyyunnansapogenin from the roots of Glycyrrhiza yunnanensis.** *Acta Pharmaceutica Sinica*, v. 25(10): 750-757, 1990 (11 ref, Chi, Eng).

Two new triterpenoidal sapogenins of eleannnnane type, namely glyyunnanprosapogenin D and glyyunnansapogenin F were isolated from the roots of *G.yunnanensis*, collected from Yunnan Province, China. Their structures were determined by hydrolysis and spectrol analysis.

**9201-0570** Zhang, C.P., Zhang, Y.G., Zheng,Q.T., He, C.H.* (Institute of Dermatology, Chinese Academy of Medical Sciences, Nanjing 210042, China) **The isolation and structure identification of triptotriterpenic acid C.** *Acta Pharmaceutica Sinica*, v. 24(3): p. 225-228, 1989 (5 ref, Eng, Chi).

A new ursolic-type acid named triptotriterpenic acid C was obtained from the total glycosides extracted from the root of *Tripterygium wilfordii*. Its structure was inferred from chemical reaction, IR, 1H NMR, 13C NMR and MS spectral data. The structure and stereochemistry of this compound was confirmed to be 3beta,22alpha-dihydroxy-delta12-ursene-30-oic acid by X-ray crystallo-diffraction analysis of its methyl ester.

**9201-0571** Zhang, G.L., Pan, W.E., Peng, S.L. , Chen, L., Chen, W.X.(Chengdu Institute of Biology, Academia Sinica, Chengdu 610015, China) **The alkaloids of Dactylicapnos torulosa (Hook F. et Thomas) Hutchins.** *Acta Pharmaceutica Sinica*, v. 25(8): p. 604-607, 1990 (9 ref, Chi, Eng).

Six ingredients were isolated from the whole plant of *D.torulosa*. Four of them were identified by UV, IR, 1H NMR and 13C NMR. One of them is a new compound named zijinlongine (I). The three others are 1-methoxyber-

berium chloride(II), triethylphenylammonium chloride (III), and isocorydine (IV), Compounds II and III are isolated from plants for the first time.

**9201-0572** Zhang, S.L., Chen, Y.J., Cui, C.B. , He, G.X., Xu, S.X., Pei, Y.P. , Yao, X.S., Zhu, T.R.(Shenyang College of Pharmacy, Shenyang 110 015, China) **A new minor saponin from the leaves of Panax ginseng C.A. Meyer.** *Acta Pharmaceutica Sinica*, v. 24(11): p. 877-879 , 1989 (3 ref, Chi, ENg).

Two minor compounds isolated from the leaves of *P.ginseng* were characterized as 20(R)-protopanaxadiol (I) and 3beta,6alpha,12beta-trihydroxydammar-20 (22), 24-diene-6-O-alpha-L-rhamnosyl-(1 to 2)-beta-D-glucopyranoside (II) on the basis of spectral analysis and chemical evidences. I was isolated for the first time from the leaves; II was shown to be a new saponin and was named as ginsenoside-Rg.

**9201-0573** Zhao, Y.Q., Yuan, C.L., Fu, Y.Q. , Wei, X.J., Zhu, H.J., Chen, Y.J. , Wu, L.J., Li, X.(Liaoning College of Traditional Chinese Medicine, Shenyang 110 032, China) **Chemical studies of minor triterpene compounds isolated from the stems and leaves of Panax ginseng C.A. Meyer.** *Acta Pharmaceutica Sinica*, v. 25(4): p. 299-301, 1990 (15 ref, Chi, Eng).

Two new natural products were isolated from the stems and leaves of *P.ginseng* cultivated in Liaoning, China. Their structures were characterized as 20(R)-dammaran-3beta,6alpha,12beta,20,25-pentol and 20(R)-dammaran -3beta, 6alpha,12beta, 20,25-pentol-6-O-alpha-L-rham-pyranosyl(1-2)-O-beta-D-glucopyranoside.

**9201-0574** Zhou, C.M., Yao, C., Sun, H.L. , Qiu, S.X., Cui, G.Y. (National Institutes of Pharmaceutical Research and Development, Shahe, Beijing 102206, People's Republic of China) **Volatile constituents of the rhizome of Homalomena occulta.** *Planta Medica*, v. 57(4): p. 391-392, 1991 (4 ref, Eng).

Fourty-four compounds were identified from the oil of *H.occulta* rhizome. The major compounds were linalool, terpinen-4-ol, cedrenol, saussurea lactone, delta-cadinol, alpha-terpineol, eremophilene and moslene.

**9201-0575** Zhou, H.M., Liu, Y.L.(Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Beijing 100 094, China) **Structure of swertiamacroside from Swertia macrosperma C.B. Clark.** *Acta Pharmaceutica Sinica*, v. 25(2): p. 123-126, 1990 (7 ref, Eng, Chi).

From the air-dried whole plant of *S.macrosperma* four compounds were isolated. One of them is a new caffeic acid disaccharide ester. Its structure was elucidated on the basis of chemical and spectroscopic analysis, and named as swertiamacroside. The other three known compounds were identified as mangiferin, bellidifodin and bellidifodin-8-O-beta-D-glucopyranoside.

## Chemotaxonomy

**9201-0576** Balasubramanyam, V.R., Rawat, A.K.S.(National Botanical Research Institute, Lucknow 226001, UP, India) **Studies on morphology and chemistry of Piper betle L..** *Journal of Plantation Crops*, v. 18(2): p. 78-87, 1990 (9 ref, Eng).

Morphology and amino acid composition amongst five cultivars of *P.betle* have been described. Eugenol was found to be the major aroma constituent of essential oil. Cultivar Sanchi was found to be marked by the presence of stearaldehyde which was absent in other cultivars, while cultivar Meetha showed presence of anethole. NSL, New Delhi.

**9201-0577** Bernath, J., Danos, B., Hethelyi, E.(Research Institute for Medicinal Plants, H-2011 Budakalasz, Hungary) **Variation in essential oil spectrum of Salvia species affected by environment.** *Herba Hungarica*, v. 30(1-2): p. 35-46, 1991 (9 ref, Eng, Hun).

Representatives of *Salvia* genus (*S.officinalis*, *S.sclarea*, *S.aethiopis* and *S.austriaca*) have been grown under controlled and field conditions. In growth chambers Hungarian warm (up to 27/17 degree C day-night rhythm) and cold (21/11 degree C) climatic conditions were simulated using 16 klx and 8 klx light intensities. The changes in plant development and alteration in primary and secondary production were detected. In relation of the essential oils the magnitude and spectra of accumulation proved to be an identity mark of species. However, the actual level was determined by environment. A defined modification in the environment can induce a similar change of biosynthesis, accumulation or metabolism of a given component of several species. It has been justified by PCA analysis that neglecting proper physioecological investigations even separated groups of the same population might consider to be a partioned intraspecific chemotaxa.

**9201-0578** Brophy, J.J., Boland, D.J.(Department of Organic Chemistry, University of New South Wales, PO Box 1, Kensington, NSW 2033, Australia) **The leaf essential oil of two chemotypes of Backhousia anisata Vickery.** *Flavour and Fragrance Journal*, v. 6(3): p. 187-188 , 1991 (9 ref, Eng).

*B.anisata* has been found to occur in two chemotypes. One chemotype was found to contain E-anethole (90+per-

cent) as its major component with small amount of methyl chavicol (less than 5 percent) and very little Z-anethole (less than 0.1 percent). The second chemotype was found to contain methyl chavicol (60-75 percent) as its major compound with smaller amounts of E-anethole (less than 25 percent) and Z-anethole (less than 0.1 percent). In both cases the oil yield was 1-1.5 percent based on fresh leaves.

**9201-0579** Chiavari, G., Galletti, G.C. , Morotti, M.*, Piccaglia, R.(Institute for Agronomy and Production of Herbs, Via Filippo Re 8, 40126 Bologna, Italy) **Silymarin content of different Silybum marianum L.Gaertn. cultivars.** *Herba Hungarica*, v. 30(1-2): p. 23-34, 1991 (14 ref, Eng, Hun).

Cultivars of *S.marianum* were obtained from Italy, F.R.G., Hungary, Rumania, Israel and Argentina and grown in Northern Italy. Agronomic parameters (fruit yield, full blossom date, number of heads per plant) are reported. Silymarin content of the fruits was estimated by spectrophotometric methods (direct reading at 280 nm and at 490 nm after reaction with 2.4 dinitrophenylhydrazine).Quali-and quantitative analysis of silymarin isomers (silychristin, silydioanin, silybin a and B, isosilybin A and B) was performed by high performance liquid chromatography using both UV and electrochemical detectors. Significant differences among the *S.marianum* cultivars were found both in the total silymarin content and in the isomeric distribution.

**9201-0580** Dora, G., Edwards, J.M.*(Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy, University of Connecticut, Storrs, Connecticut 06269-2092, USA) **Taxonomic status of Lanaria lanata and isolation of a novel biflavone.** *Journal of Natural Products*, v. 54(3): p. 796-801 , 1991 (15 ref, Eng).

Phytochemical examination of the EtOH extract of *L.lanata* (=L.plumosa] showed the absence of phenalenone pigments that are the chemotaxonomic marker for the family Haemodoraceae. This finding, together with other embryological and palynological evidence, militates against inclusion of the monotypic South African [Lanaria] in that family. Investigation of the EtOAc-soluble materials resulted in the isolation of lanaroflavone, a novel biflavonoid, and the related amentoflavone.

**9201-0581** Lemmich, E., Smitt, U.W., Jensen, J.S., Christensen, S.B.(Departments of Organic Chemistry and Pharmacognosy, The Royal Danish School of Pharmacy, 2 Universitetsparken, DK-2100 Copenhagen, Denmark) **Guaiane esters from Thapsia villosa.** *Phytochemistry*, v. 30(9): p. 2987-2990, 1991 (14 ref, Eng).

Three new terpenes have been isolated from *T.villosa* var *minor* [2n=22(=2x)] and, mainly by spectroscopic methods, shown to be monoesters of the novel sesquiterpene alcohol (4S,5S,7S,8S)-1(10)-guaiene-8,11-diol. The acid moieties are p-coumaric acid, ferulic acid and senecioic acid, respectively. X-Ray analysis of the 8-O-(S)-1-phenylethylcarbamoyl derivative of the parent guaienediol established the relative and absolute configuration. The chemotaxonomic value of the heterogeneity of terpenes found in different specimens within the species *T.villosa* is discussed.

**9201-0582** Marimuthu, S.(Department of Biosciences, Sardar Patel University, Vallabh Vidyanagar 388 120, Gujarat, India) **Chemotaxonomy of Apocynaceae.** *Journal of Plant Anatomy and Morphology*, v. 5(1): p. 1-7 , 1988 (Recd. 1991, 11 ref, Eng).

Preliminary phytochemical screening has been carried out in 12 laticiferous members belonging to family Apocynaceae(*Agansoma caryophyllata, Allamanda cathartica, A.violaceaNericum indicum* (white and pink varieties) *Plumeria alba, P.rubra, Tabernaemontana divaricata, Thevetia peruviana* and *Vallaris solanacea*). Based on the qualitative analysis of carbohydrates and amino acids, an artificial key has been suggested which may help in delineation of closely related taxa of the family. NSL, New Delhi.

**9201-0583** Menut, C., Lamaty, G., Zollo, P.H.A. , Atogho, B.M., Abondo, R., Bessiere, J.M.(Laboratoire de Chimie Organique Physique, Universite de Montpellier II, Sciences et Techniques du Languedoc, 34095 Montpellier Cedex 5, France) **Aromatic plants of tropical central Africa. V. Volatile components of three Zingiberaceae from Cameroon: Aframomum melegueta (Roscoe) K. Schum., A.danielli (Hook.f.) K. Schum. and A.sulcatum (Oliv. and Hanb.) K.Schum.** *Flavour and Fragrance Journal*, v. 6(3): p. 183-186 , 1991 (27 ref, Eng).

Essential oils isolated from the seeds of *A.melegueta, A.daniellii* and *A.sulcatum* by hydrodistillation were analysed by GLC and GC-MS. Essential oil of *A.melegueta* presents a characteristic composition with beta-caryophyllene (8.5 percent), alpha-humulene (31.3 percent) and their epoxides (respectively 17.9 percent and 27.7 percent) as main constituetns. With its high content of 1,8-cineole (48.9 percent), the *A.daniellii* oil can be related to other species of the same genus already studied. The sesquiterpenoid content of *A.sulcatum* amounts to about 85 percent, mainly hydrocarbons (81 percent); among them, the guaienes are the most abundant (47.2 percent). Other constituents that are important markers of individual species include linalol *(A.melegueta)*, beta-pinene, limonene and alpha-terpineol *(A.daniellii)*, limonene and beta-selinene *(A.sulcatum)*.

**9201-0584** Piccaglia, R., Marotti, M.(Istituto di Agronomia Generale e Coltivazioni Erbacee, Universita di Bologna, Via Filippo Re 8,40126 Bologna, Italy) **Composition of the essential oil of an Italian Thymus vulgaris L. ecotype.** *Flavour and Fragrance Journal*, v. 6(3): p. 241-244 , 1991 (18 ref, Eng).

The composition of the essential oil from a *T.vulgaris* type growing wild in northern Italy was determined by GC and GC-MS. Forty-four components of the oil were identified, monoterpenes being the most abundant (about 80 percent). The biogenetic sequence gamma-terpinene to p-cymene to thymol probably defines the chemotype. The effect of environmental conditions over the two consecutive trial years was evaluated with respect to the quali-quantitative composition of the essential oils and some agronomic parameters.

**9201-0585** Song, W.Z., Cui, J.F., Zhang, G.D.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Studies on the medicinal plants of Magnoliaceae-Tu-hou-po of Manglietia.** *Acta Pharmaceutica Sinica*, v. 24(4): p. 295-299, 1989 (6 ref, Eng, Chi).

Data from a survey of the drug market and investigation of the original part of "Tu-hou-po" showed that the drugs were derived from 5 species of *Manglietia* viz., *M.chingii, M.insignis, M.duclouxii, M.yuyuanensis*, and *M.szechuanica*. Comparisons of the main characteristics and chemical components showed that *Manglietia* is taxonomically the closest to *Magnolia* and contained similar components. The results of HPLC analysis demonstrated that they contained magnolol, honokiol, magnocurine and salicifoline, in different quantities. However, no magnosprengerine was detected. Besides, it was also found that the percentage of magnolol and honokiol contents were higher, while that of magnocurine was lower in Hou-po. On the contrary, the content of magnocurine was higher, while that of magnolol and honokiol were lower in Tu-hou-po.

**9201-0586** Umadevi, I., Daniel, M.(Phytochemistry Laboratory, Department of Botany, The MS University of Baroda, Baroda 390002, India) **Chemistry in the taxonomy of the Simaroubaceae.** *Journal of Phytological Research*, v. 3(1&2): p. 1-5 , 1990 (15 ref, Eng).

Ten plants belonging to seven genera of the Simaroubaceae were analysed for their leaf phenolics. The family is chemically homogenous in having flavones, glycoflavones and flavonols evenly distributed. Though Balanites is similar to the Simaroubaceae in its flavonoid chemistry, its inability to synthesise quassinoids keeps it in the Zygophyllaceae. The merger of all the genera of the subfamily Simarouboideae into a single genus is not supported. The family is an advanced taxon among the Sapindales.

**9201-0587** Zdero, C., Bohlmann, F., Mungai, G.M.(Institute for Organic Chemistry, Technical University of Berlin, D-1000 Berlin 12, Germany) **Carvotacetone derivatives and other constituents from representatives of the Sphaeranthus group.** *Phytochemistry*, v. 30(10): p. 3297-3303, 1991 (34 ref, Eng).

Four species of the *Sphaeranthus* group viz., (*Blepharispermum zanguebaricum, Athroisma gracile, Sphaeranthus cyathuloides* and *S.confertifolius*) afforded, in addition to known compounds, 12 new ent-labdane derivatives, seven carvotacetone derivatives and mixtures of myo-inositol esters. Structures were elucidated by high field NMR techniques. The chemotaxonomic aspects are discussed.

## Ethnomedicine

**9201-0588** Alam, S.P.(Department of Botany, Oriental College, Patna 800 008, Bihar, India) **Ethnobotanical study of Euphorbia hirta Linn.** *Biojournal*, v. 2(2): p. 251-254, 1990 (5 ref, Eng).

The plant morphology distribution, pollination and medicinal uses of *E.hirta* are reported. NSL, New Delhi.

**9201-0589** Awasthi, A.K.(Botanical Survey of India, Andaman-Nicobar Circle, Port Blair 744 102, India) **Ethnobotanical studies of the Negrito Islanders of Andaman Islands, India - The Great Andamanese.** *Economic Botany*, v. 45(2): p. 274-280, 1991 (20 ref, Eng).

The ethnobotany of the Great Andamanese tribe has been discussed. Brief accounts of Andaman geography, ethnology, and previous ethnobotanical studies are given. Plants used in everyday life, such as for bows and arrows, canoes, fibers, food, medicines, rituals, musical instruments, tools and shelter, are described and discussed. Scientific and vernacular names, uses, and ethnobotanical improtance are listed.

**9201-0590** Chhabra, S.C., Mahunnah, R.L.A. , Mshiu, E.N.(Chemistry Department, Kenyatta University, PO Box 43844, Nairobi, Kenya) **Plants used in traditional medicine in eastern Tanzania. IV. Angiosperms (Mimosaceae to Papilionaceae).** *Journal of Ethnopharmacology*, v. 29(3): p. 295-323 , 1990 (189 ref, Eng).

Sixty-nine angiosperms are listed, which are used by traditional healers in five regions of Eastern Tanzania, namely Coast, Dar es Salaam, Kilimanjaro, Morogoro and Tanga. For each species listed, the botanical name, vernacular name, collection number, locality, habit,

distribution and medicinal uses are given. Additionally, information from literature on medicinal uses, chemical constituents, and pharmacological effects are also provided. NML, New Delhi.

**9201-0591** Crisp, P.(Department of Conservation, Wellington, New Zealand) **An ethnobotanical garden.** *Deerghayu International*, v. 6(24): p. 6-7, 1990 (Eng).

A garden has been set up for collection and cultivation of New Zealand native plants, and plants introduced by the early Polynesian and European settlers, significance of the project known as: TE WAO NUI ATANE, has been described. Uses of Hasakeke, *Phormium* spp., flax *P.cookianum*, *P.tenax* and *Demmoschoenus spiralis* have been described briefly.

**9201-0592** Dagar, H.S., Dagar, J.C.(Botanical Survey of India, Port Blair Circle, Port Blair 744102, India) **Plant folk medicines among the Nicobarese of Katchal Island, India.** *Economic Botany*, v. 45(1): p. 114-119, 1991 (8 ref, Eng).

The plant folk medicines among Nicobarese aboriginals of Katchal Island, in the Nicobar group,(India) have been described. The tribals, living in complete geographical isolation, have been using folk medicines from time immemorial. Data on 65 plant species were gathered from experienced old people. Therapeutic applications and manner of using are initially documented and described as plant remedies in folkloric tradition and popular domestic medicine. No chemical principles are identified; no putative herbal remedies are pharmaceutically and medically evaluated. A brief account of the geography of the islands, climate, ethnology, and methodology of the present work is given. Vernacular name(s) of the plants in the Nicobarese language are incorporated for the first time in literature.

**9201-0593** Garg, S., Sastry, T.C.S.*(Wealth of India Division, Publications & Information Directorate(CSIR), Hillside Road, New Delhi 110012, India) **Some unexploited medicinal plants in India.** *Bulletin of Medico-Ethnobotanical Research*, v. 11(1-4): p. 40-69, 1990 (22 ref, Eng, Hin).

This paper deals with 107 unexploited medicinal plants occurring in India. They are mainly exotics but found wild or cultivated in many parts of India. In native places these are well reputed for their therapeutic value but there is no record of their utilization in Indian Medicine. Alphabetically arranged botanical names, distribution in India and medicinal uses in other countries are given in tabular form.

**9201-0594** Leporatti, M.L., Pavesi, A.(Dipartimento di Biologia Vegetale, University of Rome, "La Sapienze", Rome, Italy) **New or uncommon uses of several medicinal plants in some areas of Central Italy.** *Journal of Ethnopharmacology*, v. 29(3): p. 213-223 , 1990 (38 ref, Eng).

Sixty-one plants are listed under: healing and disinfectants; antiphlogistic of the skin; mouth washes, antidontalgics and remedies for tooth-decay; eye washes and remedies for opthalmia; antineuralgics, antirheumatics and sedatives for lumbar and joint pains; remedies for gout, deparatives and detoxicants; remedies for the urinogenital system; remedies for the respiratory system; cosmetic uses; and miscellaneous uses.

**9201-0595** Lewis, W.H., Elvin-Lewis, M.P., D.W.(Washington University, St. Louis, M063130, USA) **Pentagonia gigantifolia (Rubiaceae) as a snakebite remedy: Empirical methodology functioning in Amazonian traditional medicine.** *Economic Botany*, v. 45(1): p. 137-138, 1991 (Eng).

A case of treating snake bite by drinking the juice of crushed bark of *P.gigantifolia* has been reported. This treatment was known to one tribe of Amerindians of Amazonian Peru and was readily accepted by another tribe and it formed part of their Pharmacoepia. New knowledge regarding herbal medicine is thus spread from tribe to tribe.

**9201-0596** Manandhar, N.P.(National Herbarium and Botanical Laboratories, Godavari, Lalitpur, Nepal) **Medicinal plant-lore of Tamang tribe of Kabhrepalanchok district, Nepal.** *Economic Botany*, v. 45(1): p. 58-71, 1991 (28 ref, Eng).

Tamangs, one of the ethnic tribes of Nepal, have a good association with plant resources they use for their existence. A glimpse of medico-botany of this tribe has been provided. As many as 95 plant species, both wild and cultivated, representing 88 genera under 47 families, have been found to be of common use for the treatment of various ailments. *Curculigo orchioides* is the only plant representing the monocotyledons.

**9201-0597** Meena Kumari, Tirkey, P., Singh, M.P.(Department of Forest Sciences, Birsa Agricultural University, Kanke, Ranchi 834006, Bihar, India) **Studies of tribal medicinal plants of Hazaribagh.** *New Botanist*, v. 18(1-2): p. 105-107, 1991 (5 ref, Eng).

During the survey of Hazaribagh district, the authors collected 22 medicinal plants and information regarding their uses was collected either from the tribal medicinmen or from old, experienced people using these plants to cure different diseases. The plants collected are recorded in

alphabetical order. Their botanical names, local names, parts used and mode of administration are also given. NSL, New Delhi.

**9201-0598** Nagaraju, N., Rao, K.N.(Medicinal Plants Research Laboratory, Department of Botany, Sri Venkateswara University, Tirupati 517 502, Andhra Pradesh, India) **A survey of plant crude drugs of Rayalaseema, Andhra Pradesh, India.** *Journal of Ethnopharmacology*, v. 29(2): p. 137-158 , 1990 (24 ref, Eng).

An ethnobotanical survey of Rayalaseema of Andhra Pradesh was carried out during 1985-1988. One hundred and thirty-one useful plants currently used by the tribal and non-tribal inhabitants for treating different ailments are presented. Most of the uses of the plants reported by herbalists appear not to have been recorded hitherto. The study reveals some interesting information about the mode of plant use in various ailments either singly or in combination. It has been observed that though the tribes studied live under the same environment and use the same plant species for treating diseases, their prescriptions are quite different. This indicates that these tribes still retain their own traditions so far as treatments are concerned. NML, New Delhi.

**9201-0599** Novaretti, R., Lemordant, D.*(Maitre de Conferences en pharmacie, Ancien interne des hopitaux de Marseille, Ancien Chef de Service a l'Institut Pasteur d'-Ethiopie, 161 rue Paradis 13006 Marseille, France) **Plants in the traditional medicine of the Ubaye Valley.** *Journal of Ethnopharmacology*, v. 30(1): p. 1-34, 1990 (26 ref, Eng).

One hundred and thirty six medicinal plants have been enlisted alongwith their vernacular names, parts used, instructions for use, medicinal uses and the principal pharmacological and therapeutical properties. This study points out the close connection between plants, pathology and the living conditions of an agro-sylvo-pastoral civilization. NML, New Delhi.

**9201-0600** Prasad, S.S., Mohan, K., Singh, A.K.(Department of Botany, L.S. College Muzaffarpur, Bihar, India) **Ethnobotanical exploration of the Tharu belt of Champaran (North Bihar): Part I: Medicinal plants of the area.** *Biojournal*, v. 2(2): p. 203-206, 1990 (8 ref, Eng).

The information has been provided on 35 species of medicinally important plant being used by the tribals of Tharu belt. This includes 23 plants, the medicinal value of which have not been reported so far. The botanical, local, and vernacular names, part used, family and medicinal values have been enumerated. NSL, New Delhi.

**9201-0601** Schmeda-Hirschmann, G., Rojas De Arias, A.(Facultad de Recursos Naturales, Departamento de Ciencias Biologicas, Universidad de Talca, Casilla 747, Talca, Chile) **A survey of medicinal plants of Minas Gerais, Brazil.** *Journal of Ethnopharmacology*, v. 29(2): p. 159-172 , 1990 (11 ref, Eng).

A list of fifty-two plant species used for medicinal purposes or to control arthropods by peasants near Belo Horizonte, Minas Gerais has been compiled. Preparation procedures are also noted. The use of plants for controlling insects and to heal a condition known as "ferida brava" is discussed. The role of indigenous plant remedies within the local health care system is worthy of a closer investigation. NML, New Delhi.

**9201-0602** Sharma, N.K.(Department of Botany, Govt. College, Jhalawar 326001, Rajasthan, India) **Ethno botany of Mukundaras-weather indicating plants.** *Journal of Phytological Research* , v. 3(1&2): p. 65-70 , 1990 (4 ref, Eng).

Mukundara ranges, a continuation of "Vindhyan series", are favourite shelters for the tribals of the area viz 'Bhils' and 'Moghiyas' who utilize the plants growing around them for diversified purposes. 10 plant species for their utility as weather indicators have been discussed along with a mention about concurrences as wellas difference of opinion amongst various tribals ofRajasthan about the weather indicating quality of*Diospyros melanoxylon*.

**9201-0603** Turner, N.J., Hebda, R.J.(Botany Unit, Royal British Columbia Museum, Victoria, BC V8V 1X4, Canada) **Contemporary use of bark for medicine by two Salishan native elders of southeast Vancouver Island, Canada.** *Journal of Ethnopharmacology*, v. 29(1): p. 59-72 , 1990 (19 ref, Eng).

Elders of the Saanich and Cowichan Coast of southern Vancouver Island treat or have treated in the recent past, many ailments with bark preparations. Interviews with two elder Salischan women revealed that respiratory ailments, digestive tract ailments, gynaecological problems, dermatological complaints, fevers, diabetes, kidney problems, sore eyes, and haemorrhages were treated with barks. Twenty three plants used for such ailments have been identified. Two recipes for general-purpose multi-bark medicines are provided. In most cases, infusions or decoctions of barks are used. The medicines are drunk or applied externally as a wash. NML, New Delhi.

**9201-0604** Zardini, E.(Missouri Botanical Garden, P O Box 299, St. Louis, M 063166, USA) **Ethnobotanical notes on 'Yacon," Polymnia sonchifolia (Asteraceae).** *Economic Botany*, v. 45(1): p. 72-85, 1991 (20 ref, Eng).

Attention is directed to the latent possibilities of *P.sonchifolia*, long cultivated in the Andean cloud forest for

its tuberous, inulin-reserving roots. It is a promising diabetic food. The species needs to be preserved since achenes are unknown and possibly are not produced at all.

## Analytical & Processing Techniques

**9201-0605** Bhide, M.B.(Indian Institute of Toxicology, 172 Hornby Bldg., D N Road, Fort, Bombay 400 001, Maharashtra, India) **Methodologies for evaluation of safety and toxicity [No.S-22.3, Abstract of paper presented at the 2nd Congress of Toxicology in Developing Countries, held at New Delhi, 24-28 Nov, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*. v. 1(1): p. 129, 1991 (Eng).

Methodologies for evaluation of safety and toxicity of herbal medicines do not differ in principle from the established methods used for evaluation of synthetic drugs. The difficulty arises in the proper identification of the test article, batchwise standardization, and toxicity of pharmacognostically similar materials. The major emphasis should be on long term studies.

**9201-0606** Bicchi, C., Rubiolo, P., Frattini, C., Sandra, P., David, F.(Dipartimento di Scienza e Tecnologia del Farmaco, via P. Giuria 9, 10125 Torino, Italy) **Off-line supercritical fluid extraction and capillary gas chromatography of pyrrolizidine alkaloids in Senecio species.** *Journal of Natural Products*, v. 54(4): p. 941-945 , 1991 (19 ref, Eng).

The pyrrolizidine alkaloid (PA) fraction of *S.inaequidens* and *S.cordatus* was extracted by off-line supercritical fluid extraction (sfe) and analyzed by capillary gas chromatography. Sfe was carried out with a home-assembled apparatus, using MeOH/CO2 as extraction medium, at 55 degree and 15 MPa. Compared to the classical MeOH Soxhlet extraction, this technique requires a smaller sample amount and provides a quicker extraction, a simplified PA fraction clean-up, and a higher recovery.

**9201-0607** Blania, G., Spangenberg, B.(E.Scheurich Pharmwerk GmbH, D-7604 Appenweier, Federal Republic of Germany) **Formation of allicin from dried garlic (Allium sativum): A simple HPTLC method for simultaneous determination of allicin and ajoene in dried garlic and garlic preparations.** *Planta Medica*, v. 57(4): p. 371-375, 1991 (19 ref, Eng).

In garlic (*A.sativum*) the enzyme alliin lyase catalyzes the cleavage of alliin into allicin which reacts further to furnish ajoene. A simultaneous determination of allicin and ajoene is introduced which, in contrast to the determination of alliin only, allows for the testing of the activity of alliin lyase. It can be demonstrated that at a pH value of less than 3 the enzyme produces only small amounts of allicin. For this reason preparations from garlic should be administered only as enteric-coated formulations.

**9201-0608** Bradbury, J.H., Egan, S.V., Lynch, M.J.(Department of Botany, Australian National University, Canberra, ACT 2601, Australia) **Analysis of cyanide in cassava using acid hydrolysis of cyanogenic glucosides.** *Journal of the Science of Food and Agriculture*, v. 55(2): p. 277-290, 1991 (34 ref, Eng).

An acid hydrolysis method was developed for cyanide analysis in cassava. Hydrolysis in 2.0 M H2SO4 at 100 degree C for 50 min of a cassava extract produced cyanohydrins which rapidly decomposed to cyanide ion in alkali. Excess pH 6 buffer was added, followed by chloramine-T and pyridine/barbituric acid (Konig reaction) to produce a purple solution which was measured spectrophotometrically at 583 nm. Six locally grown cultivars gave less than30 mg HCN kg-1 fresh tuber, and one cultivar (SM1-150) contained only 4 mg HCN per kg fresh weight. Analyses of the same cultivar grown more recently gave values of 13-27 mg HCN per kg,showing the need for a study of the environmental factors influencing the cyanide content of cassava tubers.

**9201-0609** Brown-Thomas, J.M., Christensen, R.G. , Rieger, R., Malone, W., May, W.E.(Organic Analytical Research Division, Center for Analytical Chemistry, National Institute of Standards and Technology, Gaithersburg, MD 20899, USA) **Determination of glycyrrhetinic acid in human plasma by high-performance liquid chromatography.** *Journal of Chromatography. Biomedical Applications*, v. 568(1): p. 232-238, 1991 (15 ref, Eng).

A high-performance liquid chromatographic (HPLC) method has been developed for measuring 16-beta-glycyrrhetinic acid (GRA) in human plasma in the range of 0.1-3 microg/ml. The acetate ester of GRA is added to the plasma as an internal standard, plasma proteins are denatured with urea to release GRA, and the GRA and the internal standard are extracted in an ion-pairing solid-phase extraction process. An isocratic, reversed-phase HPLC separation is used, followed by ultraviolet absorbance detection at 248 nm. The results from the analysis of five GRA-fortified plasma pools show a mean relative standardard deviation of 7 percent and are accurate to within 10 percent. With evaporative concentration of the extract, the limit of detection for GRA in plasma is approximately 10 ng/ml. NSL, New Delhi.

**9201-0610** Chang, L.P., Sheng, L.S., Yang, M.Z., An, D.K.(China Pharmaceutical University, Nanjing 210 009, China) **Retention index of essential oil in temperature-programmed capillary column gas chromatography.**

*Acta Pharmaceutica Sinica*, v. 24(11): p. 847-852 , 1989 (5 ref, Chi, Eng).

Kovats retention indexes of more than 200 kinds of natural and synthetic compounds were determined on polar liquid phase (DB-WAX) and nonpolar liquid phase (DB-1) by linear temperature-program capillary column gas chromatography. Some rules of part of the homologus series of compounds were summed up from the retention indexes: the rules of RI vs carbon, RI vs boiling point and RI on two columns. In order to keep the retention indexes practical, effects of initial temperature, program rate and average linear carrier gas velocity, etc. on the retention indexes were investigated. The conclusion is that the retention indexes are highly reproducible so long as the program parameters change in a certain range.

**9201-0611** Charvet, A.S., Comeau, L.C., Gaydou, E.M.(Laboratoire de Chimie Biologique Appliquee, Universite d'Aix-Marseille III, 13331 Marseille Cedex 3, France) **New preparation of pure petroselinic acid from fennel oil (Foeniculum vulgare).** *Journal of the American Oil Chemists' Society*, v. 68(8): 604-607, 1991 (23 ref, Eng).

Pure petroselinic acid (cis-6-Octadecenoic acid) has been isolated from fennel oil by acid soap crystallization at 4 degree C in methanol, followed by two urea segregations at room temperature and crystallization at - 30 degree C in acetone. The purity control of petroselinic acid was effected by combined gas chromatography, and 13 C nuclear magnetic resonance. This petroselinic acid preparation was compared to other previous crystallization or enzymatic methods, showing that this method is both short (four steps) and easy to apply.

**9201-0612** Didry, N., Dubreuil, L., Pinkas, M.(Laboratories de Pharmacognosie et Bacteriologie, Faculte de Pharmacie de Lille, 3, rue du Professeur Laguesse, 59045, Lille Cedex, France) **New procedure for direct bioautographic TLC assay as applied to a tincture of Ranunculus bulbosus.** *Journal of Ethnopharmacology*, v. 29(3): p. 283-290 , 1990 (9 ref, Eng).

A new procedure for TLC bioautographic assay using a flooding method to inoculate the developed plates is described. Details about several microbiological parameters allow good reproduceability for this method which appears rapid, easy to perform and requiring no specialized equipment. Significant results obtained with a commercial tincture of *R.bulbosus* illustrate this method which can be extended to complex mixtures of natural products in order to isolate active fraction. NML, New Delhi.

**9201-0613** Dwivedi, R.K., Sharma, R.K.*(Department of Physiology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, UP, India) **Quantitative estimation of Holarrhena antidysenterica bark total alkaloids in crude drugs and in the body fluids of man and rat.** *Journal of Ethnopharmacology*, v. 30(1): p. 75-89 , 1990 (18 ref, Eng).

A turbidimetric method was developed for the quantitative estimation of the total alkaloids of Kutej bark (*H.antidysenterica*) in crude medicinal preparations and in the body fluids of man and rat. Crude medicinal preparations from three different pharmaceutical sources contained varying concentrations of the alkaloids. Complete recovery of the alkaloids was possible from plasma and urine while significant amounts of the alkaloids were lost to blood cells and faecal content in man and rat. NML, New Delhi.

**9201-0614** Fang, X.C., Xiang, B.R., An, D.K.(Department of Pharmaceutical Analysis, China Pharmaceutical University, Nanjing 210009, China) **Classification of Chinese traditional medicine, Moutan (Paeonia suffruticosa Andr.) Cortex by means of pyrolysis-high resolution gas chromatography/pattern recognition.** *Acta Pharmaceutica Sinica*, v. 25(6): p. 462-468, 1990 (13 ref, Chi, Eng).

Thirty-eight samples of Moutan (*P.suffruticosa*) Cortex obtained from three different regions (Southwest, East and Middle China) and two samples of unknown region were subjected to analysis with pyrolysis-high resolution gas chromatography (Py-HRGC). Each sample was thus characterized by the peak area of 41 peaks in each Py-HRGC profile. Discriminant analysis (DA), PRIMA and SIMCA pattern recognition were used to recognize the 40x41 data matrix. These data analysis gave satisfactory results (DA, 100 percent correct; PRIMA, 100 percent correct, 92.2 percent unique; SIMCA, 92.2 percent correct, 79 percent unique). The correct classification of Moutan Cortex for the unknown territory was obtained by three pattern recognition methods. The results showed that Py-HRGC/pattern recognition tenchnique might be a potential tool for the identification of Chinese traditional medicine.

**9201-0615** Folkman, A., Kowalewska, K.(Instytut Roslin i Przetworow Zielarskich, ul. Libetta 27, 61-707 Poznan, Polska) **Determination of scopolamine and atropine content in herb of Datura innoxia Mill..** *Herba Polonica*, v. 36(1-2): p. 43-46, 1990 (15 ref, Pol, Eng).

A colorimetric method for determination of scopolamine and atropine based on extraction of raw material with 0.5 M acetic acid, alkalization of the extract and reextraction with chloroform has been described. The content of scopolamine was 0.357 percent and atropine 0.053 percent. The variation coefficients were 7.09 and 5.20 percent respectively.

**9201-0616** Gandhi, V.M., Mulky, M.J.(Hindustan Lever Research Centre, Andheri East, Bombay 400 009, India) **Detoxification of castor seed meal [No. P-1.64, Abstract of paper presented at the 2nd Congress of Toxicoloty in Developing Countries, held at New Delhi, 24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 214, 1991 (Eng).

Castor seed meal contains powerful toxalbumin called ricin, allergens and an alkaloid ricinine. Castor seed meal is too poisonous to be used as an ingredient in animal feed. The detoxification of castor pomace by a novel method of wet mixing of castor seed cake with sal seed cake has been effected. In this process toxicants from castor seed cake are neutralised by toxins (tannins) present in sal seed cake, the resulting product is innocuous and therefore suitable for use as animal feed ingredient.

**9201-0617** Huston, C.K., Hong Ji(Varian Chromatography Systems, 2700 Mitchell Drive, Walnut Creek, California 94598, USA) **Optimization of the analytical supercritical fluid extraction of cloves via an on-column interface to an ion trap GC/MS system.** *Journal of Agricultural and Food Chemistry*, v. 39(7): p. 1229-1233, 1991 (6 ref, Eng).

Various densities of supercritical carbon dioxide were evaluated in terms of their ability to selectively extract the components of ground clove buds (*Syzygium aromaticum*). The extracts were recovered by using either a direct on-column interface or solvent recovery, and an ion trap GC/MS system was used for solute separation and identification. The on-column interface was more efficient than the solvent recovery method under all evaluated conditions. Extraction time was also found to have a significant effect on extract composition for both recovery methods. The on-column interface system provided optimal component selectivity with minimum analysis and method development times and greater potential resolution. These capabilities are particularly valuable for trace and volatile constituent analyses of complex natural products.

**9201-0618** Lemberkovics, E., Petri, E. , Marczal, G.(Semmelweis Medical University, Institute of Pharmacognosy, 1085 Budapest, Ulloi u.26, Hungary) **Analytical investigations for standardization of complex rosemary plant products.** *Herba Hungarica*, v. 30(1-2): p. 117-129, 1991 (6 ref, Eng, Hun).

The possibilities of standardization based on effective substances of the complex rosemary "Inno Rheuma" preparations- Inno Rheuma Cream, Tea-mixture, Massage oil and Liquid bath additive have been studied. A suitable spectroscopic and chromatographic (TLC, GC) method has been worked out for the qualitative and quantitative analysis. It has been established that for the standardizatione of the products the determination of tannin and total essential oil content and detection of some depside and essential oil components are necessary. The results of the quantitative evaluation showed that the measured and calculated data were generally in a good agreement with one another. Several deviations were also justified.

**9201-0619** Liang, H.X., Yu, R.G., Yang, Q.H. , Ni, K.Y.(China Pharmaceutical University, Nanjing 210009, China) **Determination of ephedrine, pseudoephedrine and strychnine in Jiufen San by HPLC.** *Acta Pharmaceutica Sinica*, v. 25(11): p. 849-853 , 1990 (3 ref, Chi, Eng).

An HPLC method was established to separate and determine ephedrine (I), pseudoephedrine (II) and strychnine (III) in Chinese traditional medicine, Jiufen San. The programmed gradient elution was carried out and recoveries were determined as 98.94+-2.2 percent for I,97.37+-1.9 percent for II and 100.7+-1.9 percent for III respectively. An extracting and pretreatment method was designed and the result showed that the extracting efficiency of this method was 1.33 times (I) and 1.29 times (II) higher than those of the Chinese Pharmacopoeia method.

**9201-0620** Makki, S., Treffel, P., Humbert, P. , Agache, P. (Department of Analytical Chemistry, Faculty of Medicine and Pharmacy, 2 Place St. Jacques, 25030, Besancon, France) **High-performance liquid chromatographic determination of citropten and bergapten in suction blister fluid after solar product application in humans.** *Journal of Chromatography. Biomedical Applications*, v. 563(2): p. 407-413, 1991 (16 ref, Eng).

Citropten and bergapten are present in bergamot (*Citrus spp*) oil which is used as a tanning cosmetic product.A new method to quantify the amount of citropten and bergapten in the human skin after suntan products application (an emulsion and an oil formulation) is described. A suction blister technique performed of the anterior aspect of the forearm permitted the collection of these two accumulated molecules. Fluorometric and ultraviolet detections were used for citropten and bergapten determinations, respectively. NSL, New Delhi.

**9201-0621** Mosandl, A., Fischer, K., Hener, U. , Kreis, P., Rettinger, K., Schubert, V. , Schmarr, H.G.(Institut fur Lebensmittelchemie, Universitat Frankfurt, D 6000 Frankfurt, Germany) **Stereoisomeric flavor compounds. 48. Chirospecific analysis of natural flavors and essential oils using multidimensional gas chromatography.** *Journal of Agricultural and Food Chemistry*, v. 39(4): p. 1131-1134, 1991 (28 ref, Eng).

Multidimensional gas chromatography (MDGC), employing heart-cutting techniques from a polar and non-chiral preparation column onto a chiral main column, coated with heptakis(2,3,6-tri-O-methyl)-beta-cyclodextrin as the chiral stationary phase, is proved to be a rather sensitive method of high selectivity to differentiate the enantiomers of 2-methylbutanoic acid (esters), chiral monoterpenes, alkan-2-ols, alken-2-ols, and 1,2-ketols from complex matrices. The specific distribution of enantiomers is discussed as an indicator for the genuineness of natural flavors and essential oils.

**9201-0622** Ogbeide, O.N., Parvez, M.(Chemistry Department, University of Benin, PMB 1154, Benin City, Nigeria) **A simple colorimetric quantification of flavonoids in the flowers of Lonchocarpus cyanescens genus: Lonchocarpus.** *Plant Foods for Human Nutrition*, v. 41(3): p. 233-239 1991 (24 ref, Eng).

The determination of the concentration of each flavonoid (pelargonidin, quercetin, kaempferol and luteolin) as a factor of absorbance on a simple single cell photoelectric colorimeter (Seagull Electric Institute Model-1) is reported. The results obtained for genus Lonchocarpus (*L.cyanescens*) were consistently satisfactory, sensitive and economical compared with the standard thin layer procedure. This is the first report of this method in flavonoid work.

**9201-0623** Oka, Y., Otsuki, K., Katagi, M. , Tsuchihashi, H. (Faculty of Pharmaceutical Science, Kinki University, 3-4-1, Kowakae, Higashiosaka, Osaka 577, Japan) **Study of components in crude drugs by head space gas chromatography. 1. Components of Asiasari Radix.** *Yakugaku Zasshi*, v. 111(4,5): p. 234-240, 1991 (9 ref, Eng, Jap).

Determinations of volatile components of essential oil contained in Asiasari Radix were studied by head space gas chromatography. The head space gas, which was generated by heating 0.2g of crude drug with 1.0 ml of water at 90 degree C for 45 min, was analyzed directly by gas chromatography or gas chromatography-mass spectrometry. This method was rapid, and did not require tedious procedures and time consuming, and without contamination of the column.

**9201-0624** Omi, T., Kamesaki, T., Kajii, E. , Ikemoto, S. (Department of Legal Medicine and Human Genetics, Jichi Medical School, Yakushiji, Minamikawachi-machi, Kawachi-gun, Tochigi-Ken 329-04, Japan) **Method for detecting the lectin activity of Momordica charantia transfered from micro two-dimensional electrophoretic gel on to nitrocellulose.** *Journal of Chromatography. Biomedical Applications*, v. 570(2): p. 399-405, 1991 (405 ref, Eng).

A method has been devised for detecting both the molecular mass and the isoelectric point (PI) of the lectin in the seed extract of *M.charantia* on a nitrocellulose membrane. It was associated with the elctrophoretic blotting technique that produced replicas of proteins separation on micro two-dimensional polyacrylamide gels. The red blood cell adherance procedure on the blotted membrane exhibited only one red spot with molecular mass 107100 and pi 5.3, which indicated the lectin activity. Additionally, the lectin appeared to be a glycoprotein with mannose and/or glucose, because it was stained by concanavalin A-peroxidase staining. NSL, New Delhi.

**9201-0625** Reinhart, P., Harkrader, R., Wylie, R., Yewey, G., Van Horne, K.C.(ATRIX Laboratories, Inc., P.O.Box 20150, Ft. Collins, Co 80522-2501, USA) **Sanguinarine levles in biological samples by high performance liquid chromatography.** *Journal of Chromatography. Biomedical Applications*, v. 570(1): p. 425-434, 1991 (7 ref, Eng).

A high performance liquid chromatographic method is presented for the analysis of the benzophenanthridine alkaloid, sanguinarine, found in plant extracts (*Macleaya microcarpa, M.cordata* and *Sanguinaria canadensis*). The method is applicable to analyzing samples such as saliva and gingival crevicular fluid for sanguinarine following a simple acidified methanolic extraction step. The method utilized an ethyl silane column with acidic and basic ionpairing reagents in the mobile phase with a limit of detection of 3ng of sanguinarine in a sample. NSL, New Delhi.

**9201-0626** Ridout, C.L., Price, K.R., DuPont, M.S., Parker, M.L., Fenwick, G.R.(Department of Molecular Science, AFRC Institute of Food Research, Norwich Laboratory, Colney Lane, Norwich NR4 7UA, UK) **Quinoa saponins-Analysis and preliminary investigations into the effects of reduction by processing.** *Journal of the Science of Food and Agriculture*, v. 54(2): p. 165-176, 1991 (28 ref, Eng).

A gas chromatographic method has been developed for the analysis of saponins in quinoa, *Chenopodium quinoa*. The method, which involves separation and quantitation of the trimethylsilylated sapogenols, has been applied to the analysis of the UK-grown crop obtained by selection from lowland Chilean ecotypes. Total saponin contents of 1.03 and 1.19 percent were found for material grown in 1987 and 1988. The major aglycone in the quinoa saponin mixture was identified as phytolaccagenic acid (more than 40 percent total), with hederagenin (about 25 percent) and oleanolic acid (30 percent) aglycones also being present. The effects of washing and abrasion on total and individual saponin content were investigated; and data

obtained suggest differential cellular locations of the individual saponins. The processing of quinoa led to changes in sensory characteristics; removal of saponins was associated with reductions in bitterness andastringency.

**9201-0627** Sady, M.B., Seiber, J.N.*(Department of Environmental Toxicology, University of California, Davis, California 95616, USA) **Field test for screening milkweed latex for cardenolides.** *Journal of Natural Products*, v. 54(4): p. 1105-1107 , 1991 (12 ref, Eng).

A simple test was devised to screen for cardenolides in latex of milkweed (*Asclepias* spp, *Nerium oleander, Tragopogon dubius, Taraxacum officinale* and *Euphorbia pulcherrima*). The test is based on a documented spectrophotometric assay for cardenolides in plants. During field collections for a chemotaxonomic study of milkweeds endemic to the intermountain U.S. region, the test qualitatively facilitated on-site screening of potential specimens.

**9201-0628** Segiet-Kujawa, E., Drozdzynska, M. , Michalowska, A., Jastrzab, B.(Institute of Medicinal Plants, Libelta 27, 61-707, Poznan, Poland) **Comparison of methods of flavonoids and chalcones determination in Glycyrrhiza glabra L. root.** *Herba Polonica*, v. 36(1-2): p. 33-41, 1990 (16 ref, Eng).

Liquiritigenin and isoliquiritigenin obtained by hydrolysis of licuraside isolated from *G.glabra* roots were separated by rotary thin layer chromatography. HPLC, spectrophotometric, densitometric and colorimetric methods were compared for determination of flavonoids and chalcones using three samples of the plant material.

**9201-0629** Snyder, J.M., Mounts, T.L.(Vegetable Oil Research, Northern Regional Research Center, Agricultural Research Service, USDA, 1815 N. University Street, Peoria, IL 61604, USA) **Analysis of vegetable oil volatiles by multiple headspace extraction.** *Journal of the American Oil Chemists' Society*, v. 67(11): p. 800-803, 1990 (16 ref, Eng).

Quantitative determination of the volatiles produced from oxidized vegetable oils is an indicator of oil quality. Five vegetable oils, viz., low erucic acid rapeseed, corn, soybean, sunflower and high oleic sunflower were stored at 60 degrees for 4 and 8 days to yield oils with several levels of oxidation. Peroxide values of the fresh and oxidized oils ranged from 0.6 to 1.8 and 1.6 to 42 respectively. Volatile analysis by the multiple headspace extraction (MHE) technique which includes a pressure and time controlled injection into the gas chromatography column was compared with that obtained by static headspace gas chromatography (SMS-GC). MHE technique provided a more reproducible measure of volatile compounds than that obtained by SHS-GC.

**9201-0630** Sun, W.J., Sha, Z.F., Gao, H.(Shaanxi Provincial Institute for Drug Control, Xian 710061, China) **Determination of osthol and imperatorin in Cnidium monnieri (L.) Cuss by fluorometry TLC scanning.** *Acta Pharmaceutica Sinica*, v. 25(7): p. 530-533, 1990 (6 ref, Chi, Eng).

The main active constituents- osthol and imperatorin were isolated from *C.monnieri* and then used as standards for their determination in the crude drug by fluorometry TLCS. The fructus Cnidii was macerated with ethanol overnight and the ethanolic extract was spotted on a silica gel G-CMC Na plate. The plate was developed with n-hexane-ethyl acetate (7:3). The spot was excited by light of 365 nm, and determined in a Shimadzu CS-930 TLC scanner. The root, stem, leaf and flower of this plant were shown to contain no osthol and imperatorin, and the seed was found to contain 2.0 to 3.2 percent of osthol and 1.8 to 2.5 percent of imperatorin.

**9201-0631** Verma, R.K., Uniyal, G.C., Gupta, M.M.*(Central Institute of Medicinal and Aromatic Plants, Lucknow 226 016, UP, India) **High performance liquid chromatography of poppy straw.** *Indian Journal of Pharmaceutical Sciences*, v. 52(6): p. 276-278, 1990 (18 ref, Eng).

A method for routine analysis of major opium alkaloids, morphine, codeine, thebaine, papayerine and narcotine, in poppy straw samples is described. Recovery of alkaloids obtained was better when the sample was extracted with 2.5 percent aqueous acetic acid and lime and mobile phase-A was used as eluting solvent.

**9201-0632** Wang, K., Tong, Y.Y., Song, W.Z.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Determination of the active ingredients in Chinese drug Wuweizi (Schisandra chinensis) by TLC-densitometry.** *Acta Pharmaceutica Sinica*, v. 25(1): p. 49-53, 1990 (6 ref, Chi, Eng).

A method based on TLC densitometry was developed to determine the active ingredients(Wuweizisu A,B,C; wuweizichun A,B; wuweizi easter and schisanhenol) in *S.chinensis* kernels. The chromatogram was examined under UV light,the ingredients appeared as dark spots.The average recoveries of the constituents were 92.4-101. 6 percent; the variation coefficients were 1.62-5.28 percent.

**9201-0633** Wang, K., Tong, Y.Y.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **Determination of the main alkaloids in**

**Wu Tou (aconite) by TLC-densitometry.** *Acta Pharmaceutica Sinica*, v. 25(5): p. 387-390, 1990 (9 ref, Chi, ENg).

A method based on TLC densitometry was established in order to determine the main alkaloids, mesaconitine, aconitine and hypaconitine in *Aconitum sp.* root. Standard solution and sample solution were spotted and developed, and the chromatogram was observed under UV light as dark spots. Linear calibration curves were obtained for the 3 constituents in the range of 2 to 6 microg. The average recoveries of masaconitine, aconitine and hypaconitine were 97.3, 96.4, 99.1 percent and the variation coefficients were 1.81, 1.72, 1.18 percent, respectively. Samples from various sources were analyzed.

**9201-0634** Wang, L.R., Li, H.Y., Xie, C.K.(Chengdu Institute of Organic Chemistry, Academia Sinica, Chengdu 610 015, China) **Reverse-phase HPLC determination of coumarins in the traditional Chinese drug Bai-zhi (Angelica dahurica forma Bai-zhi).** *Acta Pharmaceutica Sinica*, v. 25(2): p. 131-136, 1990 (11 ref, Chi, Eng).

A reversed phase HPLC procedure has been developed for the separation and determination of oxypeucedanin (I), imperatorin (II) and isoimperatorin (III) in *A.dahurica* simultaneously. The results were calculated by external standard method on the basis of peak area. The average recoveries of the standards added to the sample were 101.36, 100.54 and 97.91 percent for I, II and III respectively, and coefficients of variation were less than or equal to 3.33 percent. Analytical results by HPLC method are in agreement with those by TLC method. This method has been applied to analyse the contents of three components in 42 samples of *Angelica*.

**9201-0635** Wang, Y.M., Zhao, L.H., Lin, S.L. , Dong, S.S., An, D.K. (China Pharmaceutical University, Nanjing 210009, China) **Determination of berberine and palmatine in cortex Phellodendron and Chinese patent medicines by HPLC.** *Acta Pharmaceutica Sinica*, v. 24(4): p. 275-279, 1989 (5 ref, Eng, Chi).

Berberine (1) and palmatine (2) in cortex *Phellodendron* and Chinese patent medicines were determined by HPLC. The optimal composition of mobile phase CH3COOEt-HCOOH-EtOH (15:3:2) for HPLC separation of berberine and palmatine was successfully determined by using window diagram technique. Detection wavelength was 346nm. Flow rate: 1.5 ml/min. Calibration graphs for 1 and 2 were rectilinear for 0.06-0.32 microg and 0.12-0.32 microg respectively. The average recoveries of the two corresponding components were found to be over 96 percent and their coefficients of variation were below 5 percent.

**9201-0636** Wintoch, H., Krammer, G., Schreier, P.(Lehrstuhl fur Lebensmittelchemie, Universitat Wurzburg,Am Hubland, D-8700 Wurzburg, FRG) **Glycosidically bound aroma compounds from two strawberry fruit species, Fragaria verca f. semperflorens and Fragaria x ananassa, cv. Korona.** *Flavour and Fragrance Journal*, v. 6(3): p. 209-215 , 1991 (17 ref, Eng).

Capillary gas chromatographic (HRGC) and on-line coupled HRGC-mass spectrometriacal (HRGC-MS) indentifications of bound aroma compounds from wild and cultivated strawberry fruit were achieved after isolation of extracts obtained by Amberlite XAD-2 adsorption and F. x ananassa 33 aglycons were identified. Among them (S)-2-methylbutanoic acid, benzyl alcohol, 2,5-dimethyl-4-hydroxy-2H-furan-3-one, benzoic acid and E-cinnamic acid were found as major components.

**9201-0637** Wu, C.Y., Guo, P., Ye, L.M. , Wu, S.C.(School of Pharmacy, West China University of Medical Science, Chengdu 61001, China) **Solid phase clean up and determination of theophylline in plasma by reversed phase high performance liquid chromatography.** *Acta Pharmaceutica Sinica*, v. 24(10): p. 769-773 , 1989 (10 ref, Chi, Eng).

A plasma sample clean up procedure using alumina solid phase to eliminate the interference of plasma impurities and some other drugs and a RP-HPLC method to determine plasma theophylline concentration were developed. The system used a Zorbax-C18 (5 micro m) column. The mobile phase consists of a mixture of methanol and sodium acetate (50:50) buffer (pH 3.0). Detection at a wavelength of 254 nm showed no interfering peaks. Caffeine was used as an internal standard. The detection limit of theophylline is 0.2 ng(R/N,3:1), the minimal detectable concentration of theophylline in plasma is 20 ng/ml. Calibration curve is linear in the concentration range of 4 microg/ml to 30 microg/ml. The average recovery of the method is 98.44+-o.89 percent.

**9201-0638** Xu, J.P., Xiang, B.R., An, D.K.(Department of Pharmaceutical Analysis, China Pharmaceutical University, Nanjing 210009, China) **P-Matrix spectrophotometric determination of 6 components contained in compound reserpine tablets.** *Acta Pharmaceutica Sinica*, v. 24(11): p. 853-858 , 1989 (5 ref, Chi, Eng).

P-matrix method has been developed for the simultaneous determination of vitamin B1, vitamin B6, chlordiazepoxide, dihydralazins sulfate, promethazine hydrochloride and hydrochlorothiazide contained in compound reserpine tablets consisting of 10 components. The

optimal wave-length for measurement was successfully selected based on the principle of condition number. The influence of experimental error, number of wavelength and condition number deviation of component concentration from formula were discussed. The average recoveries varied from 97to103 percent.

**9201-0639** Xu, L.X., Liu, A.R.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **Determination of taxol in the extract of Taxus chinensis by reversed phase HPLC.** *Acta Pharmaceutica Sinica*, v. 24(7): 522-555, 1989 (2 ref, Eng, Chi).

Because the antineoplastic effect is related to the content of taxol, a simple method is needed for the determination of taxol in the bark extract of *T.chinensis* samples. An HPLC method for the determination of taxol is described in which betamethasone is used as an internal standard. The method is simple, rapid and accurate, as little as 0.1 microg of taxol can be measured.

**9201-0640** Xu, L.X., Liu, A.R., Zhang, X.Q.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100 050, China) **Coulometric titration of total flavonoids in Sophora japonica L..** *Acta Pharmaceutica Sinica*, v. 24(10): p. 755-758 , 1989 (3 ref, Eng, Chi).

A method for the determination of total flavonoids in *S.japonica* by coulometric titration was developed. The titration was carried out in a mixture of 1 mol/L potassium bromide 2 mol/L HC1(1:1) and bromine was generated at the anode, rutin reacted with two moles of bromine with an n value of 4. The advantages of this method are simple and rapid, it can be used to analyze small amount of sample.

**9201-0641** Xu, L.X., Zhang, X.Q.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Determination of total flavonoids in Epimedium brevicornum Maxim by differential pulse polarography.** *Acta Pharmaceutica Sinica*, v. 24(8): p. 606-610, 1989 (3 ref, Chi, Eng).

The polarographic behavior of icariin (flavonoid component of *E.brevicornum*) in various electrolytes was studied. It was found that a well defined peak was obtained in 0.05 mol/L ammonium sulfate supporting electrolyte at a potential of-1.51 V(vs Ag/AgCl). An excellent linear relationship was obtained between the concentration (1.28-3.85x10-6 mol/L) and peak current. The method can be used to analyze flavonoids in small amount of medicinal herb samples.

**9201-0642** Yamamura, Y., Kawakami, J., Santa, T., Kotaki, H., Uchino, K., Sawada, Y., Iga, T.(Department of Pharmacy, The University of Tokyo Hospital, Faculty of Medicine, The University of Tokyo, Hongo, Bunkyo-ku, Tokyo 113,Japan) **Selective high-performance liquid chromatographic method for the determination of glycyrrhizin and glycyrrhetic acid-3-O-glucuronide in biological fluids: application of ion-pair extraction and fluoresence labelling agent.** *Journal of Chromatography. Biomedical Applications*, v. 567(1): p. 151-160, 1991 (19 ref, Eng).

With the new method glycyrrhizin (a natural compound extracted from *G.glabra*) can be analyzed in plasma, bile and urine in as low concentrations as 1,1, and 2.5 micro g/ml respectively. The equivalent values for the glucuronide were 1,2.5 and 2.5 micro g/ml respectively. The method is applicable in pharmacokinetic studies of glycyrrhizin in small animals. NSL, New Delhi.

**9201-0643** Yang, L., Liu, Y.L., Lin, S.Q.(Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Beijing 100 094, China) **HPLC analysis of flavonoids in the root of six Glycyrrhiza species.** *Acta Pharmaceutica Sinica*, v. 25(11): p. 840-848 , 1990 (6 ref, Chi, Eng).

Ten flavonoids viz., licochalcone A, isoschaftoside, schaftoside, liquiritin, isoviolanthin, violanthin, ononin, isoliquiritin,4', 7-dihydroxyflavone and licoflavone A, isolated from six species of *Glycyrrhiza* root were analysed by reversed phase HPLC. Nine *Glycyrrhiza* samples of six species were analysed to determine their composition and content of the flavonoids. The results showed that the composition and content of the flavonoids of different *Glycyrrhiza* species were different as well as the same species but collected from different places.

**9201-0644** Zhai, H.B., Cong, P.Z.(Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Beijing 100 094, China) **Mass spectrometric studies on dibenzocyclooctadiene lignan compounds from Schisandraceae plants.** *Acta Pharmaceutica Sinica*, v. 25(2): p. 110-122, 1990 (3 ref, Chi, Eng).

Mass spectrometric studies on fragmentation patterns of 23 dibenzocyclooctadiene lignan compounds isolated from Schisandraceae plants, such as schisandrin A, were carried out by using low and high-resolution mass spectrometric techniques and metastable ion analyses. The main mass spectral characteristics were summarized to provide a sound basis for further researches on Schisandraceae plants and for structural elucidation of similar new compounds.

## Miscellaneous

**9201-0645 . Precatory bean - a monograph.** *Lawrence Review of Natural Products*, p. 1-2, June 1991 (15 ref, Eng).

Prompt emesis followed by supportive therapy may result in uncomplicated recovery from *Abrus precatorius* poisoning. Botany, history, chemistry, pharmacology and toxicology of *A.precatorius* have been briefly reviewed.

**9201-0646 . Ammi- a monograph.** *Lawrence Review of Natural Products*, p. 1-2, June 1991 (10 ref, Eng).

Plants of the genus *Ammi* have been used for thousands of years for the treatment of urologic, dermatologic and respiratory symptoms. Clinical evidence supports their effects in dermatology and respiratory illnesses. The use of khellin, a major component of this plant, is limited by toxicity. Botany, history, chemistry, pharmacology and toxicology of *A.visnaga* and *A.majus* have been briefly reviewed.

**9201-0647 . Poke weed: a monograph.** *Lawrence Review of Natural Products*, p. 1-2, April 1991 (13 ref, Eng).

Botany, history, chemistry, pharmacology and toxicology of *Phytolacca americana*, *P.decandra* and *P.rigida* have been briefly discussed. The young leaves of the plant may be eaten and berries used for food, both only after being cooked properly. Mature leaves and all other parts of the plant are toxic (primarily gastrointestinal and central) if ingested.

**9201-0648 . Squill- a monograph.** *Lawrence Review of Natural Products*, p. 1-2, April 1991 (8 ref, Eng).

Squill and its extracts have been used for centuries in medicine and as a rat poison. White squill continues to find use in some traditional medicine preparations for its digitalis-like cardiotonic effects, although this use is almost extinct. Squill extracts do continue to find some use in low doses as expectorants. Red squill is used as rodenticide. Botany, history, chemistry, pharmacology and toxicology of *Urginea maritima*, *U.indica*, *U.maritima* var *pancratium*, *U.scilla*, and *S.indica* have been reviewed briefly.

**9201-0649 . Wormwood: a monograph.** *Lawrence Review of Natural Products*, p. 1-2, April 1991 (8 ref, Eng).

Wormwood (*Artemisia absinthium*) and its extracts have been used traditionally in the treatment of worm infections and as flavoring agents. Wormwood extract was the most important component of the liqueur absinthe, a toxic drink that was banned early in the 20th century. Wormwood toxicity is caused by thujone, which may exert its central effect by interacting with receptors for tetrahydrocannabinol. Botany, history, chemistry, pharmacology and toxicology of wormwood have been reviewed.

**9201-0650 . Woodruff-a monograph.** *Lawrence Review of Natural Products*, p.1, Aug. 1991 (4 ref, Eng).

Woodruff (*Galium odoratum*) is a common herb that is used as a fragrance and flavoring in foods. Although the plant has been used medicinally for a variety of purposes, there is only a scant evidence to support these uses. Botany, history, chemistry, pharmacology and toxicology of *G.odoratum* have been reviewed.

**9201-0651 . Bayberry: a monograph.** *Lawrence Review of Natural Products*, p. 1, Aug 1991 (4 ref, Eng).

Bayberry (*Myrica cerifera*) is best known for its use in the production of fragrance used in the preparation of scented Christmas candles. There is little evidence to support its use for the treatment of any disease and its high tannin content suggests that it should not be taken internally in any form. Botany, history, chemistry, pharmacology and toxicology of *M.cerifera* have been briefly reviewed.

**9201-0652 . Papaya: a monograph.** *Lawrence Review of Natural Products*, p. 1-2, Aug, 1991 (11 ref, Eng).

Papain is a mixture of natural enzymes derived from *Carica papaya* fruit. Papain is used as a meat tenderizer and chymopapain is employed in the chemical degradation of herniated vertebral discs. The latex from the plant may induce dermatitis and allergic hypersensitivity reactions have been associated with the ingestion of the plant and its extracts. Botany, history, chemistry, pharmacology and toxicology of papaya have been briefly reviewed.

**9201-0653 . Yew: a monograph.** *Lawrence Review of Natural Products*, p. 1-2, Aug. 1991 (5 ref, Eng).

The yew (*Taxus baccata*, *T.cuspidata*, *T.canadensis*, *T.floridana*, *T.brevifolia* has been used in herbal medicine for centuries. One extract is being evaluated for its antineoplastic potential and is meeting with reasonable clinical success. It is often associated with childhood and animal poisonings. All parts of the plant are toxic with the exception of the fleshy red fruit. Botany, history, chemistry, pharmacology and toxicology have been reviewed.

**9201-0654** Bone, K.(Medi Herb Pty Ltd., PO Box 713, Warwick 4370, Australia) **Liquorice - the universal herb.** *British Journal of Phytotherapy*, v. 1(2): p. 7-12 , 1990 (43, Eng).

Liquorice *Glycyrrhiza glabra* has been widely used in Western herbal medicine, Chinese, Kanpo and Ayurvedic traditional systems. A short review of its constituents,

therapeutic applications, side effects, pharmacology, etc. has been presented.

**9201-0655** Born, C.(Schmidstr.12, 7961 Bergatreute, Germany) **Meadowsweet has many names.** *PTA Heute*, v. 5(8): p. 397, 1991 (Ger).

Description of the plant, chemical constituents, active principles, uses, teas and homoeopathic uses of meadosweet *(Filipendula ulmaria)* have been given.

**9201-0656** Born, C.(Schmidstr. 12, 7961 Bergatreute, Germany) **Linden tree - a tree with a history.** *PTA Heute*, v. 5(7): p. 320-321, 1991 (Ger).

Description of the tree, drug, chemical constituents and uses of linden tree *(Tilia cordata* and *T.platyphyllos)* have been described.

**9201-0657** Carle, R.. **Anti-inflammatory and spasmolytic botanical drugs.** *British Journal of Phytotherapy*, v. 1(1): p. 33-39 , 1990 (1 ref, Eng).

A number of plants have been used in the manufacture of single drug anti-inflammatory and spasmolytic preparations. Their active constituents, pharmacology, uses in folk medicine, their place in today's therapy and corresponding commercial drugs have been discussed. The following commonly used plants have been surveyed.*Ananas comosus, Harpagophytum procumbens, Spilanthes oleraceae, Chamomilla recutita,Petasites hybridus*. A number of multidrug preparations are also available as anti-inflammatory and spasmolytic drugs.

**9201-0658** Evans, D.M.(Buddlehayes, Southleigh, Colyton, Devon EX13 6JH, UK) **Hallucinogenic plants.** *British Journal of Phytotherapy*, v. 1(2): p. 22-28 , 1990 (18 ref, Eng).

Vegetable life became glorified because it sustained all other life. Use of plants, down the ages in religion, and their subsequent use in medicine has been discussed. Anthropological studies of mystical experiences, some personal observations, physical and mental effects of psychotropic drugs have been critically analysed.

**9201-0659** Evans, W.C.. **Deterioration of crude drugs on storage.** *British Journal of Phytotherapy*, v. 1(1): p. 16-19 , 1990 (4 ref, Eng).

Many factors influence the shelf life of crude drugs. The primary factors for deterioration are light, humidity, air and temperature. However,when conditions are satisfactory, living organisms will develop in stored drugs and spoil them. Bacteria, moulds, miles, beetles,moths, rodents, etc and control measures have been discussed.

**9201-0660** Ghanim, A.(Central Arid Zone Research Institute, Jodhpur 342 003, Rajasthan, India) **Hingota: a tree of immense untapped potential.** *Indian Farming*, v. 41(7): p. 9-11, 1991 (Eng).

Methods of vegetative propagation, flowering, fruiting, variation in fruit samples, Hingota oil, oil from seeds, variation in diosgenin, bulk extraction, oil cake as animal feed and the industrial potential of *Balanites aegyptica* have been discussed.

**9201-0661** Hunter, A.. **Herbal medicine and natural therapies in Australia: what do we want for the future**. *British Journal of Phytotherapy*, v. 1(2): p. 29-31 , 1990 (1 ref, Eng).

Herbal medicine in Australia is practised within the widely embracing catch-all of naturopathy. The impact of this position on the professional and political status of herbal medicine is discussed in a context of legislative pressures to restrict complementary therapies. Developments in Australia and the local responses are of interest to European and North American parctitioners.

**9201-0662** Jamil-ur-Rehman, Ahmad, M., Saeed, M.A., Younas, M.* (Institute of Chemistry, Punjab University, Lahore 54590, Pakistan) **Anti-oxidative activity of essential oils of some species of Umbelliferae family of Pakistan: Part I.** *Journal of the Chemical Society of Pakistan*, v. 13(1): p. 56-59, 1991 (15 ref, Eng).

The antioxidative activity of essential oils of *Ferula northex, Dorema ammoniacum, Bunium cylindricum* and *B.persicum* of the family Umbelliferae have been studied in cotton seed oil by the active oxygen method in order to find out their possible role in increasing the life of oils and fats. The essential oils have shown antioxidative activity but to different extents. The most effective essential oil is that from *Ferula northex*, which is comparable to that of t-butylated hydroxytoluene.

**9201-0663** Kaul, A.(Winrock International, Morrilton, USA) **Production and consumption of grasspea (Lathyrus sativus)in Bangladesh [No.S-18.5 Abstract of paper presented atthe 2nd Congress of Toxicology in Developing Countries, heldat New Delhi, Nov.24-28, 1991].** *International Journal of Toxicology, Occupational and Environmental Health*, v. 1(1): p. 114, 1991 (Eng).

*L.sativus* (Khesari) accounts for some 25 percent of the area as well as production of all food legumes in Bangladesh. It is the single largest source of pulse for human consumption and the most important source of protein-rich fodder for livestock. The area in which grasspea is predominantly grown in Bangladesh has unique agro-climatic conditions making replacement of the crop

difficult. Though grown and eaten all over Bangladesh grasspea consumption has resulted in reported cases of lathyrism in only two districts viz., Kushita and Rajshahi. Breeding of low-toxin grasspea varieties is a major research objective for legume breeders in Bangladesh. Also, methods of detoxifying the grain before consumption are promoted.

**9201-0664** Khadlikar, C.B.(Opposite Sarakar Wada Nasik-1, Maharashtra, India) **Agnikumar rasa.** *Deerghayu International*, v. 6(24): p. 9-11, 1990 (Eng).

Formulation, pharmacology and indications of Agnikumar Rasa have been reviewed.

**9201-0665** Morton, J.F.(Morton Collectanea, University of Miami, P O Box 8204, Coral Gables, Florida, USA) **Mucilaginous plants and their uses in medicine.** *Journal of Ethnopharmacology*, v. 29(3): p. 245-266 , 1990 (84 ref, Eng).

Nineteen plant families containing mucilages and used in folk and conventional healing are reviewed. Brief details of plant description, origin, geographical range, mucilaginous parts and medical or other uses are given. Use of easily extracted plant mucilages to provide protection from fire has been especially mentioned. NML, New Delhi.

**9201-0666** Niwa, Y., Miyachi, Y., Ishimoto, K. , Kanoh, T.(Niwa Institute for Immunology, 4-4 Asahimachi, Tosashimizu, Kochi-ken 787 03, Japan) **Why are natural plant medicinal products effective in some patients and not in others with the same disease** . *Planta Medica*, v. 57(4): p. 299-304, 1991 (20 ref, Eng).

A correlation of the clinical responses of patients to natural products with antioxidants activity to the ability of the patients' gastric juice to liberate low molecular compounds from polymers of repeating subunits and to the content of acid or pepsin in their gastric fluid was examined. Results suggest that one of the factors determining the clinical response to natural herbal medicinal products is the ability of the patient's digestive system to degrade the product to liberate bioactive low molecular compounds from repeating polymers.

**9201-0667** Pearce, D.K., Thieret, J.W.(Northern Kentucky University, Highland Heights, KY 41076, USA) **Japanese-quince (Chaenomeles species, Rosaceae), a dual-use shrub.** *Economic Botany*, v. 45(2): p. 285-288, 1991 (46 ref, Eng).

A brief review of the agronomy, chemical analysis and various economic uses of Japanese-quince is given.

**9201-0668** Shanbhag, V.V.. **Aamvaat (rheumatoid arthritis).** *Deerghayu International*, v. 6(21): p. 11-12, 1990 (7 ref, Eng).

Ayurvedic description of Aamvaat, clinical features, intestinal actiology, potent single drugs (*Dalbergia lanceolaria, Commiphora mukul, Paederia foetida, Ricinus communis* and *Semecarpus anacardium*) and combinations (Mahayograj guggulu, Maharasnadi quath and Sihandoda guggulu) have been described.

**9201-0669** Stelling, K.. **An approach to arteriosclerosis: phyto-chelation.** *British Journal of Phytotherapy*, v. 1(1): p. 10-15 , 1990 (8 ref, Eng).

The richness and inventiveness of the approach of phytotherapy to the problem of atherosclerosis through the use of safe and tried remedies should inspire some hope in those who have begun to despair about the dangers of EDTA chelation. A brief review of therapeutics for controlling hypertension, stress, thromhosis, lowering blood cholesterol, diet and prevention, action of safe remedies has been discussed.

## New Publications

**9201-0670** (British Herbal Medicine Association. PO Box 304, Bournemouth, Dors et BH76J2, UK) **British Herbal Pharmacopoeia. Vol. 1 [English, 1990, 107pp., ISBN 0-903032-08-2, Pound 35].** *British Journal of Phytotherapy*, v. 1(2): p. 38-39 , 1990 (Eng).

The new revision of the BHP will be published as successive volumes, which will ultimately be combined into a single volume. Volume 1 includes 84 monographs of which eleven are new to the Pharmacopoeia. The monographs are arranged according to the common English names of the drugs. The botanical descriptions, both macroscopical and microscopical and quantitative standards have been revised. An identification test for each drug involving TLC is an important addition to the volume. Guidance is also given on contaminants of crude drugs.

**9201-0671** Atta-ur-Rahman (ed.)(HEJ Research Institute of Chemistry, University of Karachi, Pakistan) **Handbook of Natural Products Data. Volume 1. Diterpenoid and Steroidal Alkaloids (Elsevier, Amsterdam, 1990, vii+962pp., 17.5 x 24.5 cm., ISBN 0-444-88173-5, $353.75.** *Journal of Medicinal Chemistry*, v. 34(1): p. 471 , 1991 (Eng).

This volume represents the first instalment and lists data for 1971 diterpenoid and steroidal alkaloids repeated until the end of 1988. The volume shows the systematic tabulation of all known natural products, together with information on their sources, molecular formula, melting

point and spectral characteristics. The present handbook and its future volumes would become a useful complement to the recently published dictionary of alkaloids by IW Southon and J. Buckingham, published by Chapman and Hall.

**9201-0672** Evans, W.C.(Bailliere Tindall, 24-28 Oval Road, London WW 1, 7DX, England) **Trease and Evans' Pharmacognosy, Thirteenth Edition (Eng. 1989, 832pp., $29.95).** *Economic Botany*, v. 45(1): p. 143, 1991 (Eng).

This edition has been updated with new information based on recent results of researches in this field. This volume includes nine parts and 44 chapters whereas the twelth edition included eight parts and 43 chapters. The new chapters that comprise Part Seven are 'Herbal Medicine and its Practice in Britain' and 'Oriental Drugs'. This volume presents a balanced treatment between classical (crude and powdered drugs characterization and examination and modern phytochemistry and pharmacology) aspects of this branch of science.

**9201-0673** Farooqi, M.I.H.(Sidrah Publishers, Aminabad, Lucknow, 226018, UP, India) **Plants of the Quran (Eng, 1989, 168pp., Rs 150/- U.S. $20.00).** *Economic Botany*, v. 45(2): p. 291, 1991 (Eng).

This book is divided into 30 chapters, dealing with plants mentioned in the Quran, a bibliography of 114 references, the indices of Quranic and Arabic names, botanical names, English names, chemical constituents and a section having 25 illustrations. Plant description comprises the Quranic name and account in Roman and Arabic script, an analysis and interpretation of its botanical identity. Notes on current knowledge on distribution and uses of some plants are also given.

**9201-0674** Palanichamy, S.(Ed.)(APA College of Arts & Culture (MKUNI)Palani 624 602, TN, India) **Journal of Ecotoxicology & Environmental Monitoring. v. 1(1): 1991.** (Eng).

It is an international journal for scientific reasearch on toxicology and pollution. It deals with the publication of original research paper on toxic effects of chemicals, physical agents on living organisms including human beings and their ultimale effects. Journal will be of interest for environmentalists, scientists, teachers and institutions. Its first issue appeared in January 1991. NSL, New Delhi.

**9201-0675** Pandey, V.N., Malhotra, S.C. , Sharma, D.P., Kotiyal, J.P. (eds)(Central Council for Research in Ayurveda and Siddha, New Delhi,India) **Phytochemical Investigations of Certain Medicinal Plants used in Ayurveda (Eng. 1990, pp. xlvii+336, Price not mentioned).** (Eng).

Phytochemical work done on 220 medicinal plants under the aegis of eastwhle Central Council for Research in Indian Medicine and Homoeopathy, and the Central Council for Research in Ayurveda and Siddha has been summed up in this monograph. In Part I plants are listed alphabetically according to their Ayurvedic names and in Part II some plants are listed according to their botanical names. Under each Ayurvedic drug name (Part I) are given Latin names of the plant with its family, its Ayurvedic synonyms, Ayurvedic classification, Guna-Karma (attributes and actions), Ghataka (drugs containing this plant), phytochemistry followed by a list of references. In Part II plants are listed under their botanical names alongwith their family, chemical constituents and the references. Some illustrations are also given. A bibliography and an index of plant names are also provided.

**9201-0676** Pelletier, S.W. (ed.). **Alkaloids: Chemical and Biological Perspectives. Vol. 7 Springer-Verlag, New York, 1991. xv+591pp. $98.10.** *Journal of the American Chemical Society*, v. 113(20): p. 7832, 1991 (Eng).

The seventh volume of Alkaloids: Chemical and Biological Perspectives maintains the high standard of its predecessors in providing detailed chemical, spectroscopic and most importantly, taxonomic data for both major and minor classes of alkaloids. One of the main requirements for natural product chemists is an accurate and comprehensive data base for more than 10 000 alkaloidal entries. The volume under review contains three chapters, the first of which on homoerythrina alkaloids is a very readable account of this small subset of molecules biosynthesized from phenylalanine and tyrosine. Plant sources, as well as sufficient spectroscopic data to find one's way through and become familiar with the structures, together with methods of synthesis are described (upto 1989). The second chapter is a catalog of spectroscopic data consisting mainly, but not exclusively, of 13C NMR chemical shift assignments (1H, NMR and MS data and optical rotations are also included) for some 300 steroidal alkaloids. In the third and final chapter, a comprehensive spectral catalog of more than 200 norditerpenoid alkaloids, including MS data, physical constants, and 13C/1H NMR assignments is included.

**9201-0677** Ray, P.K.(ed)(Wiley Eastern Limited, New Delhi, India) *International Journal of Toxicology, Occupational and Environmental Health*, v 1(1): p. 304, 1991 (Eng).

The new publication, viz., International Journal of Toxicology, Occupationla and Environmental Health proposes to deal with all aspects of toxicological research,

with special reference to occupational and environmental health. The formal will publish periodic reviews, lead articles, research articles, short communications, book reviews, information on conferences, seminars, workshops, etc. A special section on "TOXWATCH" will deal with information regarding toxic chemicals about which people should be watchful, the journal will be published three volumes in a year. The inaugural issue (vol.1,No.1, November 1991), pp304) includes 2 review articles, 4 research papers and incorporates the abstracts of papers presented at the 2nd Congress of Toxicology in Developing Countires, held in New Delhi, Nov.24-28, 1991.

**9201-0678** Roersch, C., Vander Hoogte, L.(Centro de Medicina Andina Apto, 711,Cusco, Peru) **Plants Medicinales del Surandino del Peru (Eng, 1988, 299 pp).** *Economic Botany*, v. 45(1): p. 142-143, 1991 (Eng).

This volume reviews the traditional medicinal uses of about 40 plants found in Southern Andes of Peru. Arranged by vernacular name, each plant is briefly described and illustrated by line drawing. Original uses are given in detail, and pharmacological and toxicological properties are summarized with references.

**9201-0679** Schultes, R.E., Raffauf, R.F.(Dioscorides Press, 9999 S.W. Wilshire, Portland, OR 97225) **The Healing Forest: Medicinal and Toxic Plants of the Northwest Amazonia. (Eng, 1990, 484pp., $59.95).** *Economic Botany*, v. 45(2): p. 297-298, 1991 (Eng).

This volume forming a basic reference for one of the most diverse floristic areas of the world is crammed with intriguing ethnomedicinal data. The book arranged family wise provides a alphabetical arrangement of genera with brief notation of geography, frequency, chemistry and pharmacology. For each species details of ethnomedicinal use and user, as well as Indian and Spanish names are given. References are provided for each family. This book could be of immense importance specially to the modern biomedical researchers.

**9201-0680** Seaman, F., Bohlmann, F., Zdero, C. , Mabry, T.J.. **Diterpenoids of Flowering Plants Compositae(Asteraceae)Springer-Verlag, New York, Berlin, Heidelberg Berlin, Heidelberg, 1990, vi+638pp., ISBN 0-387-97058-4, $ 99.00).** *Journal of the American Chemical Society*, v. 113(1): p. 388, 1991 (Eng).

The Compositae (Asteraceae) are among the most advanced and widespread of the families of flowering plants. Their alkaloids, flavonoids, sesquiterpenoids, and polyacetylene metabolites have been extensively studied, but the diterpenoid constituents, which are also numerous and structurally varied, have lacked an up-to-date overview until the publication of this compendium. The book consists of a compilation of compound names, structures, and sources, to which are appended chapters on diterpenoid biogenesis, distribution within the plant family, and biological activity. The main utility of the book is the listing of compounds grouped into structural categories. It is easy to find whether a given diterpenoid has been isolated previously, and from what source. But it is striking that, given the widespread occurrence of diterpenoids as secondary metabolites in this family, so little is yet known about their biological activity. Natural products chemists, botanists, and chemical ecologists will find this book a valuable reference and a source of many intriguing ideas about the biological functions of these compounds.

**9201-0681** Varma, R.S.(Ed.)(Industrial Printing Works, Raniganj, Lucknow, India) **Indian Journal of Heterocyclic chemistry, v.1(1): 1991 (English Rs400/-,150, Pounds 115 per annum).** (Eng).

The journal is exclusively devoted to research in the area of heterocyclic chemistry. The journal publishes invited review articles and original research papers pertaining to structure and synthesis, mechanism of reactions, spectral studies, biologically active compounds, bio-chemical studies, physico-chemical work, phytochemistry etc. NSL, New Delhi.

**9201-0682** Zeylstra, H.(Ed)(School of Phytotherapy (Herbal Medicine), Bucksteep Manor, Bodle Street Green, East Sussex BN27 4RJ, UK) **British Journal of Phytotherapy.** (Eng).

The new journal on herbal medicine from Britain, viz., British Journal of Phytotherapy will attract articles in clinical practice specially promoting the adoption of human alternatives to animal experiments in medical research. The journal will be published quarterly. The inaugural number (Volume 1, number 1, spring 1990, pp.40, ISSN-0959-6879, price UK pounds 17.00) includes 7 articles. viz., what is herbal medicine, an apporoach to arteriosclerosis, deterioration of crude drugs on storage, herbal remedies influencing the heart and circulation, the Echinaceae species, the contribution of herbal remedies to modern medicine and antiinflammatory and spasmolytic batanical drugs.

## Patents

**9201-0683** Bernard, M.(Synthelabo S.A.) **Biogenic silanol complexes from Equisetum arvense, Fr. Demande FR. 2,610,523, (Cl.A61K35/78), 1988, 3 PP.** (Fre, Eng).

The biogenic water soluble Si-complexes Si(OR)4 and Si(OR)2-6,R=catechol, flavone, sugar or vitamin C radical etc.) were extracted from *Equisetum arvense*. The

complexes were useful for remineralisation of the orgnism, and for the treatment of bone factures, osteoporosis and in tooth and nail injuries. PID, New Delhi.

**9201-0684** Ezio, B., Franco, G.P., Roberto, P.(Indena S.P.A.) **Complexes of saponins with phospholipids and pharmaceutical and cosmetic compositions containing them, Eur. pat Appl EP 283,713, (Cl. C07F9/10), 28 Sept.1988, 9 PP.** (Eng).

Complexes of saponins with a natural phospholipids are highly lipophilic and have improved bioavailability. They are used as active ingredients in pharmaceutical, dermatological and cosmetic compositions. PID, New Delhi.

**9201-0685** Fanzi, C., Fugui, X., Ziyan, J. , Hougshun, Y., Lizhen, M., Lijun, C.(Traditional Chinese Medicine Technological Development Center, Heilongjiang Province) **Rhododendron dauricum leaf extracts containing flavones for treatment of cough and asthma, Faming Zhuanli Shenqing Gongkai Shuomingshu CN.86, 108,317, (Cl. A61K35/78), 1988, 4 PP.** (Chi, Eng).

Leaf extracts of *Rhododendron dauricum* upon treatment with calcium hydroxide to remove tannins and chlorophyll, gave a product containing flavones. The product is allowed to stand for 4 hrs. filtered, mixed with sucrose to obtain syrup, which is highly useful for cough and asthma. PID, New Delhi.

**9201-0686** Giancarlo, J., Luisella, V. , Mariajose, M.(Congsigtio, Nazionale delle Ricerche, Inverni della Beffa S.P.A) **Alcohols isolated from lipophilic Serenoa repens extracts and their use for the treatment of prostate pathologies, Eur.Pat Appl. EP 287,000 (Cl. A61.K35/78), 1988, 9 PP.** (Eng).

A process for the preparation of *Serenoa repens* extracts comprises, the treatment of total lipophilic extract by alkaline hydrolysis in aqueous-alcoholic solvents. This is followed by filtration and extraction of the filtrate with a water-immiscible solvent. Orchiectomized rats were treated for five days with 12 mg testosterone propionate and 50 mg of the alcohol fraction of *Serenoa repens* extracts or with 400 mg total lipophilic *Serenoa repens* extracts or alcohol fraction administered at a dose 8 times lower than that of the lipophilic extract, induced larger decrease of both the weight of veneral prostate and seminal vesicles. The alcohol extract may thus be used to treat benign prostatic adenoma. PID, New Delhi.

**9201-0687** Hiroshi, K., Hiroshi, H.(Ohta'S Isan Company Limited) **Isolation of a flavonoid and its glycoside as blood platelet aggregation inhibitor, Japan Kokai Tokkyo Koho JP 63,203,682 (Cl. C07D493/04), 23 August, 1988, 3 PP.** (Jap, Eng).

Flavonoids and glycosides (Z=H, glycopyranosyl) are isolated from *Polygonum tinctorium*. Methanolic extraction of the above ground parts of the plant, gave the compound (Z=glycopyranosyl), which showed 0.2 mg/ml IC50 of platelet aggregation activity in human blood. Z=glycopyranosyl compound when hydrolysed with beta-glycosidase afforded a flavonoid (Z=H) compound. PID, New Delhi.

**9201-0688** Istvan, Z., Erzsebet, S., Sandor, J., Gyoergy, B., Zsuzsanna, E., Zoltan, G.. **Biogal gyogyszergyar gelatin capsules containing pharmacologically active oils, Ger.Offen. DE 3,812,169 (Cl. A61 K31/23), Nov. 1988, 6 PP.** (Ger, Eng).

Pharmaceutical gelatin capsules contain pharmacologically active oil. The oils are of plant origin and obtained by a cold-pressing process. Seeds of *Cucurbita pepostyriaca* were stored at 0-5 degree C and pressed at 5-10 degree C to give an oil with acid no. 0.6 and per oxide no. 0.6' and the oil could be in capsules for more than 2 years. Oil-containing capsules were administered to patients suffering from hypertrophy of the prost ate. PID, New Delhi.

**9201-0689** Jean Louis, L.. **Tannic principles from plants, usable in drugs and cosmetics, Fr. Demande FR. 2,611,140, (Cl. A61K35/78), 1988, 27 PP.** (Fre, Eng).

Powdered *Filipendula ulmaria* flower on extraction with 80 percent ethanol, followed by filtration and concentration of the product yielded enzyme inhibiting tannic principles. The product has been used in drugs and cosmetics. PID, New Delhi.

**9201-0690** Keikichi, S., Koji, T., Akira, F. , Makota, E.. **Forskolin - containing composition for hair graying supression, Eur. Pat. Appl. EP. 295,903, (Cl.A61K7/06), 1988, 21 PP.** (Eng).

A composition for preventing hair graying and for restoring gray hair to its natural colour comprises forskolin or its derivative and a peptide. Forskolin was isolated from *Coleus forskohlii*. PID, New Delhi.

**9201-0691** Norma, B.. **Pharmaceuticals containing loop diuretics and plant derived agents for the treatment of urolithiasis, Ger. offen. DE 3,643,000, (Cl. A61K45/06), 1988, 5 PP.** (Ger, Eng).

Pharmaceuticals contain loop diuretics and a plant derived agent which increases renal blood circulations. Tablets, which were pressed into grannulate contain root extracts of *Rubia tinctorum*. PID, New Delhi.

**9201-0692** Renrong, L.(Chinese Academy of Science, Shanghai Institute of Organic Chemistry, China) **Therapeutic S-(+)-ipalidine and its salts and their preparations from Ipomoea hardwickii, Faming Zhunali Shenqing Gongkai Shuomingshu CN 86,100,561 (Cl. C07D471/04), 1987, 8 PP.** (Chi, Eng).

Analgesic (S)-(+)-ipalidine, is extracted from *Ipomoea hardwickii* by making use of powdered seeds and treatment with aqueous NH4OH solution. The resultant mixture was extracted with benzene, and the organic phase was subjected to 2 percent H2SO4 treatment. Aqueous phase, so obtained was adjusted to pH greater than 7 and extracted with ether and recrystallised to give therapeutic (S)-(+)-ipalidine. PID, New Delhi.

**9201-0693** Takashi, H., Ysohiyasu, F. , Toshihide, Y., Kazyuki, N. (Otsuka Pharmaceutical Company Limited) **Isolation of phenylethyl glycosides from Magnolia obovata as antibacterials, antitumors, Japan Kokai Tokkyo Koho JP 63,310,899 (Cl. C07H15/18), 1988, 9 PP.** (Jap, Eng).

Bark of *Magnolia obovata* on extraction with methanol at room temperature for 7-days, yielded phenyl ethyl glycosides. The glycoside compounds are used as antibacterial and antitumor agents. The glycoside was identified as 2-(3,4-dihydroxy phenyl)ethyl-O-alpha-L-rhamnopyranosyl-(1 to 2)-3-O-caffeoyl-beta-D-allopyranoside. PID, New Delhi.

**9201-0694** Yaguang, L.. **A method for extracting saponin and quercetin from Panax notoginseng and their use as analgesics and inflammation inhibitors and for treatment of cirulatory diseases, US US 4,755,504 (Cl. 514-26; A61 K35/78), 1988.** (Eng).

Quercetin and saponin are extracted from *Panax notoginseng* root and the composition containing them is effective in the treatment of circulatory diseases and as health food. Dried powder of Tienchi roots was extracted with 10 liters of 80 percent ethanol for 24 hr. and the extracts were combined and concentrated to 1 litre by vaccum distillation and passed through a 6 column packed with polyamide resin to absorb saponin and quercetin. Saponin was selectively eluted with water and quercetin was eluted with 10,20 and 30 percent ethanol in sequence. Quercetin was concentrated and cryslallised with ethanol-water mixture to obtain pure saponin.Quercetin containing composition exhibited an analgesicactivity in a hot plate test in rats and showed anti-inflammatoryeffect too. PID, New Delhi.

**9201-0695** Yujiro, S., Kajiro, N., Hiroe, I. , Ritsu, Y., Hiroshi, I.(Ohta's Isan Company Limited) **Pharmaceuticals containing plant secoiridoids for treatment of gastritis and ulcer, Japan Kokai Tokkyo Koho JP 63,190,827 (Cl.A61K31/70), 1988, 8 PP.** (Jap, Eng).

Pharmaceuticals for treatment and prevention of ulcer and gastritis contain secoiridoids or their glycosides, swertiamarin, amarogentin, amaroswerin, and amaropanin. Amarogentin (600 mg) was isolated from 250 gm. *Swertia japonica* by using methanol, and subjecting the extract to a series of chromatography. Amarogentin of 5 mg/kg orally, when administered to rats, prevented gastric ulcer formation to a great extent. PID, New Delhi.

ABRUS PRECATORIUS 0253 0645
ABULITON INDICUM 0319
ACACIA CONCINNA 0086
ACALYPHA HISPIDA 0231
ACANTHACEAE 0013 0109 0114 0250 0273 0292 0456
ACANTHOPANAX OBOVATUS 0282
ACHILLEA MILLEFOLIUM 0272
ACHILLEA MILLEFOLIUM TANACETIFOLIA 0272
ACHRAS ZAPOTA 0307 0501
ACHYRANTHES BIDENTATA 0397
ACHYROCLINE SATUREIOIDES 0237
ACONITUM 0633
ACONITUM ALBOVIOLACEUM 0413
ACONITUM CAMPYLORRHYNCHUM 0384
ACONITUM KUSNEZOFFII 0540
ACONITUM SPP 0197
ACORUS CALAMUS 0013
ADHATODA VASICA 0013 0114 0292
ADONIS VERNALIS 0117
AEGLE MARMELOS 0035 0501
AESCULUS HIPPOCASTANUM 0130
AFRAMOMUM DANIELLII 0583
AFRAMOMUM MELEGUETA 0583
AFRAMOMUM SULCATUM 0583
AGANOSMA CARYOPHYLLATA 0582
AGAVACEAE 0361
AGERATUM CONYZOIDES 0079
AGERATUM HOUSTONIANUM 0332
AGERATUM SPP 0258
AGRIMONIA PILOSA 0496 0497 0498 0499
ALLAMANDA CATHARTICA 0582
ALLAMANDA VIOLACEA 0582
ALLIACEAE 0074 0196 0305 0457 0517 0607
ALLIUM AFLATUNENSE 0445
ALLIUM AMPELOPRASUM 0305
ALLIUM CEPA 0305
ALLIUM GIGANTEUM 0445
ALLIUM SATIVUM 0074 0115 0130 0145 0196 0240 0305 0457 0607
ALLIUM URSINUM 0517
ALLOPHYLLUS COBBE 0161
ALOE 0098
ALSTONIA MACROPHYLLA 0358
ALSTONIA SCHOLARIS 0172 0307
ALTERNANTHERA SESSILIS 0079
AMARANTHACEAE 0032 0079 0319 0397
AMARANTHUS SPINOSUS 0079 0319
AMARANTHUS VIRIDIS 0032
AMARYLLIDACEAE 0339 0391
AMMI MAJUS 0034 0646
AMMI VISNAGA 0130 0646
ANACAMPTIS PYRAMIDALIS 0108
ANACARDIACEAE 0029 0304 0354 0362 0382 0501 0668
ANACYCLUS PYRETHRUM 0253
ANAGALLIS ARVENSIS 0520
ANANAS COMOSUS 0657
ANANAS SATIVUS 0535
ANCHUSA STRIGOSA 0446 0501
ANDROGRAPHIS PANICULATA 0250 0273
ANEMARRHENA ASPHODELOIDES 0487
ANETHUM GRAVEOLENS 0217
ANGELICA DAHURICA BAI-ZHI 0634
ANGELICA PUBESCENS VAR BISERRATA 0459
ANGELICA SINENSIS 0286
ANNONA MONTANA 0194
ANNONA MURICATA 0311
ANNONA SQUAMOSA 0327
ANNONACEAE 0161 0170 0194 0296 0311 0312 0318 0327 0341 0524 0552 0556
ANTHEMIS NOBILIS VAR FLOREPLENO 0016
ANTIARIS TOXICARIA 0181
APIACEAE 0240
APIUM GRAVEOLENS 0217
APOCYNACEAE 0001 0008 0057 0061 0073 0078 0118 0130 0137 0143 0172 0225 0307 0358 0360 0562 0582 0613
AQUILARIA AGALLOCHA 0431
AQUILARIA SINENSIS 0559 0560 0561
ARACEAE 0013 0574
ARACHIS HYPOGAEA 0322 0329
ARALIACEAE 0244 0263 0266 0280 0282 0372 0422 0516 0533 0544 0545 0572 0573
ARALIACEAE(PATENT) 0694
ARCTOSTAPHYLOS UVA-URSI 0220
ARGEMONE MEXICANA 0327
ARISTOLOCHIA MOLLISSIMA 0469
ARISTOLOCHIACEAE 0153 0469
ARNICA MONTANA 0272
ARTABOTRYS ODORATISSIMUS 0318
ARTEMISIA ABSINTHIUM 0272 0649
ARTEMISIA ANNUA 0054 0060 0254 0298 0525
ARTEMISIA BARRELIERI 0291
ARTEMISIA DRACUNCULUS 0272
ARTEMISIA LACINIATA 0553
ARTEMISIA PALLENS 0306
ARTEMISIA PONTICA 0272
ARTEMISIA RUTIFOLIA 0536
ARTEMISIA SCOPARIA 0210
ARTEMISIA TRIDENTATA CANA 0394
ARTEMISIA VULGARIS 0306
ARTOCARPUS HETEROPHYLLUS 0307
ASARUM FORBESII 0153
ASCLEPIADACEAE 0013 0241 0327 0352 0401 0440 0441 0502 0504 0627
ASCLEPIAS GLAUCESCENS 0401
ASCLEPIAS SPP 0627
ASIMINA TRILOBA 0524
ASPARAGUS ASCENDENS 0253
ASPARAGUS FALCATUS 0269
ASPARAGUS FILICINUS 0386
ASPARAGUS RACEMOSUS 0123
ASPERULA ODORATA 0650
ASTERACEAE 0006 0100 0213 0298 1 0319 0332 0465 0530 0543 0579 0604 0680
ASTRAGALUS CHRYSOPTERUS 0548
ASTRAGALUS COMPLANATUS 0378
ASTRAGALUS MEMBRANACEUS 0196
ASTRAGALUS MEMBRANACEUS VAR MONGHOLICUS 0416 0417
ATHROISMA GRACILE 0587
ATRACTYLODES JAPONICA 0251
ATRACTYLODES LANCEA 0197 0251 0289
ATROPA SPP 0087
AZADIRACHTA INDICA 0107 0196 0322 0333 0501
BACKHOUSIA ANISATA 0578
BALANITES 0586
BALANITES AEGYPTIACA 0660
BALANITES ROXBURGHII 0660
BAUHINIA PURPUREA 0007
BEGONIACEAE 0162
BELAMCANDA CHINENSIS 0338
BERBERDIACEAE 0211

BERBERIDACEAE 0641
BERBERIS SPP 0211
BIGNONIACEAE 0216 0490 0542
BLEPHARISPERMUM ZANGUEBARICUM 0587
BLUMEA ERIANTHA 0079
BOENNINGHAUSENIA SESSILICARPA 0373
BOERHAAVIA DIFFUSA 0032 0250 0261
BORAGINACEAE 0063
0079 0208 0446 0501 0505
BRACHIARIA DECUMBENS 0178
BRACHYCHITON ACUMINATUS 0503
BRACHYCHITON AUSTRALIS 0503
BRACHYCHITON GREGORI 0503
BRACHYCHITON RUPESTRIS 0503
BRACHYSTEGIA NIGERICA 0491
BRASSICA CAMPESTRIS 0322 0326
BRASSICA OLERACEA 0218
BRASSICA OLERACEA VAR.CAPITATA 0485
BROMELIACEAE 0535 0657
BRUCEA JAVANICA 0565
BRUNFELSIA AMERICANA 0381
BRYA EBENUS 0182
BUNIUM CYLINDRICUM 0662
BUNIUM PERSICUM 0662
BURSERACEAE 0107 0127 0129 0158 0668
BUTEA FRONDOSA 0255
BUTEA MONOSPERMA 0253
BYRSONIMA CRASSIFOLIA 0304
BYSTROPOGON CANARIENSIS VAR SMITHIANUS 0393
BYSTROPOGON MADERENSIS 0393
BYSTROPOGON ORIGANIFOLIUS VAR PALMENSIS 0393
BYSTROPOGON PLUMOSUS 0393
BYSTROPOGON WILDPRETII 0393
CACTACEAE 0117
CAESALPINIA BONDUC 0307
CAESALPINIACEAE 0491
CALENDULA OFFICINALIS 0009 0369
CALLISTEMON LANCEOLATUS 0319
CALLUNA VULGARIS 0353
CALOTROPIS GIGANTIA 0013
CALOTROPIS PROCERA 0241 0327
CAMELLIA SINENSIS 0309 0399 0444
CANNABIDACEAE 0480 0508
CANNABIS SATIVA 0480 0508
CAPILLIPEDIUM FOETIDUM 0318
CAPRIFOLIACEAE 0304 0418 0473
CAPSICUM ANNUM 0094 0240
CAPSICUM FRUTESCENS 0164
CARICA PAPAYA 0652
CARICACEAE 0652
CARLINA ACAULIS 0100
CARUM COPTICUM 0240
CASSIA ALATA 0102 0234 0235 0313
CASSIA ANGUSTIFOLIA 0004
CASSIA FISTULA 0007
CASSIA JAVANICA 0317
CASSIA SIAMEA 0102
CASSIA SPP 0197
CASSIA TORA 0032 0079
CASSINE TRANSVAALENSIS 0389
CATHARANTHUS ROSEUS 0001 0008 0061 0073
0137
CEANOTHUS DEPRESSUS 0456
CELASTRACEAE 0294 0299 0389 0462 0534 0570
CELASTRUS ANGULATUS 0462
CENTAUREA CYANUS 0272
CENTAUREA SCABIOSA 0375
CENTELLA ASIATICA 0541
CEPHAELIS IPECACUANHA 0432
CESTRUM NOCTURNUM 0343
CHAENOMELES SPECIOSA 0667
CHAMOMILLA RECUTITA 0657
CHAMOMILLA RECUTITA CV BONA 0006
CHENOPODIACEAE 0348 0451 0626
CHENOPODIUM QUINOA 0451 0626
CHLORANTHACEAE 0104
CHRYSACTINIA MEXICANA 0383
CHRYSANTHEMUM CINERARIAEFOLIUM 0272
CHRYSOSPLENIUM GRAYANUM 0356
CICER ARIETINUM 0240
CICHORIUM INTYBUS 0103
CINCHONA 0053
CINNAMOMUM BURMANNII 0433
CINNAMOMUM CAMPHORA 0107 0319
CINNAMOMUM CAMPHORA SSP EU CAMPHOR 0337
CITRUS LIMON 0059
CITRUS MEDICA VAR ETHROG 0400
CITRUS SPP 0130 0620
CLAUSENA LANSIUM 0259
CLAVICEPS PURPUREA 0036
CLEOMACEAE 0264
CLEOME VISCOSA 0264
CLERODENDRON SERRATUM 0114
CLERODENDRUM PANICULATUM 0161
CNIDIUM MONNIERI 0630
COCOS NUCIFERA 0252
COLCHICUM CILICICUM 0108
COLCHICUM DECAISNEI 0340 0349
COLEUS FORSKOHLII 0084
COLEUS FORSKOHLII(PATENT) 0690
COLEUS SPP 0278
COMBRETACEAE 0107 0120 0123 0127 0151 0161
0176
COMBRETUM AFRICANUM 0151
COMMIPHORA GUIDOTTII 0158
COMMIPHORA MUKUL 0107 0127 0129 0668
COMPOSITAE 0003 0009 0016 0032 0054 0056
0070 0079 0083 0093 0101 0103 0113
0114 0120 0136 0147 0154 0166 0179
0196 0210 0237 0250 0251 0253 0254
0258 0275 0289 0291 0300 0304 0306
0307 0336 0369 0375 0380 0383 0394
0407
0421 0437 0456 0458 0511
0522 0525 0536 0553 0566 0587 0606
0649 0657 0680
CONIFERAE 0058
CONVALLARIA MAJALIS 0117
CONVALLARIACEAE 0117
CONVOLVULACEAE 0039 0239 0344
CONVOLVULACEAE(Patent0) 0692
CONVOLVULUS ARVENSIS 0039
CONVOLVULUS GLOMERATUS 0039
CONVOLVULUS PROSTRATUS 0039
CORIANDRUM SATIVUM 0019 0240
CORNULACA MONACANTHA 0348
CORYDALIS OCHOTENSIS 0065
CORYDALIS OPLIOCARPA 0065
CORYDALIS SOLIDA SSP BRACHYLOBA 0518
CORYLACEAE 0392
CORYLUS AVELLANA 0392
CRATAEGUS MONOGYNA 0118
CRATAEGUS OXYACANTHA 0130
CRATAEGUS OXYACANTHOIDES 0118

CRESSA CRETICA 0344
CRINUM AUGUSTUM 0391
CROSSPTERYX FEBRIFUGA 0489
CROTALARIA SPP 0102
CROTON ELUTERIA 0409
CRUCIFERAE 0217 0218 0238 0322 0326 0485
CUCURBITA PEPOSTYRIACA(PATENT) 0688
CUCURBITACEAE 0190 0192 0567 0624
CUCURBITACEAE(PATENT) 0688
CUMINUM CYMINUM 0048 0240
CUPRESSACEAE 0398 0402 0443 0470 0510
CUPRESSUS SEMPERVIRENS 0443 0470
CURCULIGO ORCHIOIDES 0481
CURCUMA AMADA 0013
CURCUMA AROMATICA 0196
CURCUMA KWANGSIENSIS 0438
CURCUMA LONGA 0011 0023 0046 0047 0119 0242
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TRIFOLIUM SPP 0138
TRIGONELLA FOENUM-GRAECUM 0040 0253
TRIPLOSTEGIA GRANDIFLORA 0471
TRIPTERYGIUM WILFORDII 0294 0299 0534 0570
TRIUMFETTA ROTUNDIFOLIA 0302
TYLOPHORA HIRSUTA 0352
TYLOPHORA INDICA 0352
UMBELLIFERAE 0019 0034 0048 0089 0115 0130 0141 0146 0217 0286 0395 0405 0459 0501 0541 0581 0611 0630 0634 0646 0662
URGINEA INDICA 0514 0648

URGINEA MARITIMA 0648
URGINEA MARITIMA VAR PANCRATIUM 0648
URGINEA SCILLA 0648
URTICA DIOICA 0100
URTICACEAE 0100
UVARIA SPP 0312
UVARIA TANZANIAE 0552
VALLARIS SOLANACEA 0582
VARTHEMIA IPHIONOIDES 0300
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VELLOZIACEAE 0500
VERATRUM SABADILLA 0334
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VITIS QUADRANGULARIS 0127
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ZANTHOXYLUM GARDNERI 0377
ZINGIBER OFFICINALE 0011 0046 0051 0120 0123 0125 0240 0250 0319
ZINGIBERACEAE 0011 0013 0014 0023 0046 0047 0051 0119 0120 0123 0125 0196 0240 0242 0250 0319 0438 0492 0583
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